

General Toxicology Notes



NOTES OF MEDADTEAM

3L.E



2010



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General Toxicology

- 1) Classification of Poisons?
- 2) Factors affecting action?
- 3) Fate.
- 4) Diagnosis.
- 5) Treatment.



- Origin (Source)
- Onset (Mode of exposure)
- Organ
- One Site or > 1 site (Site of action)

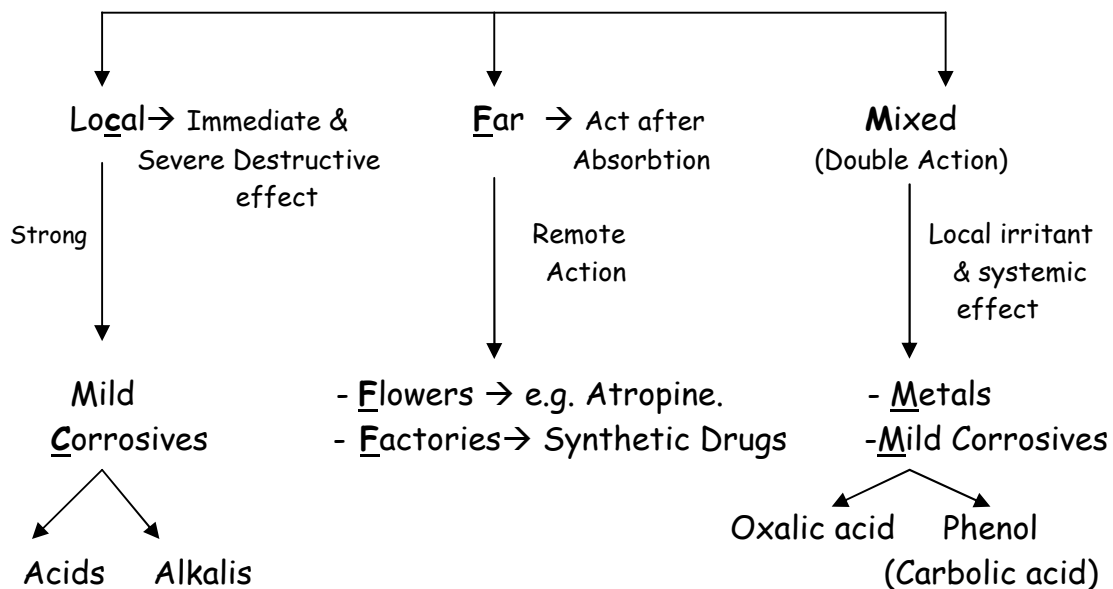
Origin & Source:

1. <u>Plants</u>	2. <u>Minerals</u> (<u>Metals</u>)	3. <u>Animal</u>	4. <u>Synthetic</u>
1. Opium ↓ Morphine ↓ Heroine 2. Atropine 3. Strychnine 4. Digitalis	-Lead -Mercury - <u>A</u> rsenic - <u>A</u> ntimony -Ph -Fe	- <u>S</u> nake. - <u>S</u> corpion. - <u>S</u> ea ↓ Marine animal's venom	<u>A</u> → <u>A</u> nalgesics <u>B</u> → <u>B</u> arbiturates (Hypnotics) <u>C</u> → <u>C</u> yclic Antidepressant (Psychotropics)

Organ Specificity:

- 1- Arsenic → Liver (Hepatotoxic).
 , Paracetamol
- 2- Digitalis → Heart
- 3- Aconite → Heart.
- 4- Mercury → Micturation (Nephrotoxic).
 , Phenol (Kidney)
- 5- Neuro Toxins → Convulsants & Depressants.
- 6- Ocular Toxins → Methanol & Nicotine.
- 7- Dermal Toxins → Corrosives & AS & Hg.
- 8- Respiratory Toxins → Kerosene & Fumes.

Site of Action:



Mode of Exposure:

- 1- Acute → Single High Dose of the Poison.
- 2- Chronic → Repeated Small Dose of the Poison.

Factors affecting action of the poison

<u>Poison</u>	<u>Patient</u> { 3 S 5 Pharma
1- <u>Quantity</u> (Dose) 2- <u>Quality</u> (Form). 3- <u>Quickest</u> (Route Of Administration) } <u>3Qs</u> 1- <u>Quantity (Dose)</u> → X Severity → Vomiting → less effect. → Fatal Dose → Smallest amount → Death 2- <u>Quality (Form)</u> → Gas > Liquid > Solid - Powders > Lumps → Solubility → Concentration 3- <u>Quickest route</u> (route of administration) IV > Inh. > IM > s.c (skin) > through mucous membrane > intradermal (skin).	"3S" 1- <u>S</u>mall Or Old (Age) Children can tolerate Atropine. 2- <u>S</u>trong Or Not (Healthy) Liver Kidney } ↓ Detoxification & Excretion ↑ Toxicity 3- <u>S</u>tomach (MCQ) → Empty Or <u>F</u>ull. السوائل (خير) ↓ Rapid Absorption الأكل (شر) ↓ Rapid Absorption Fatty Meals ↓ ♀ Ph -As ♀ Mercury -Alcohol e.g. Achlorohydia ↓ e.g.: KCN $\xrightarrow{\text{HCL}}$ HCN Non Toxic Toxic ↓ Toxicity Of KCN "5 pharma"

1) Allergy → small non-toxic
 → abnormal exaggerated response

→ Aspirin
 → Aspirin Suffer Penicillin

2) Idiosyncrasy
 → Crazy response

e.g. Morphine (Abnormal response due to genetic factor)

3) Tolerance → (in addicts)

→ ↓ Toxicity
 → ↑ Dose → Produce same effect

4) Interaction

→ i) Synergism → كاس و القرص
 Barbiturates + Ethanol
 → ii) Antagonism → المصري والمستورد
 Ethanol + methanol

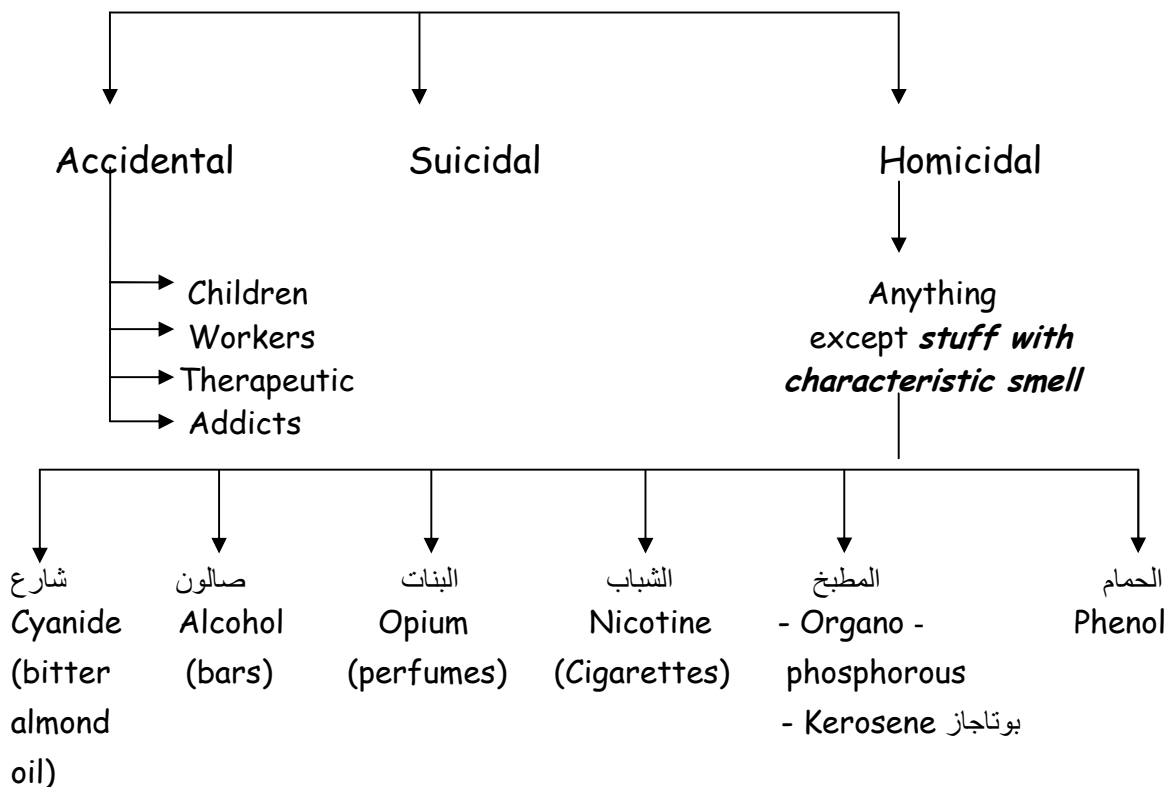
5) Cumulation

→ E.g. → Digitalis
 → Lead

5 General Toxicology

Scheme

1. Condition of poisoning



2. Fatal dose

3. Fatal period

4. Action

5. Clinical picture

6. Ttt

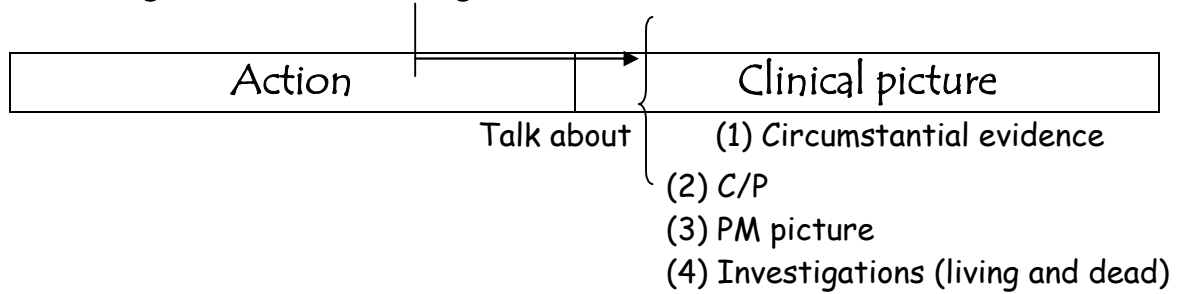
7. Post-mortum picture

± 8. Source [classification]

NMT12

± 9. Kinetics [ADME]

10. Diagnosis (Investigation)



11. D.D.

Investigations

Living الخوارج	Dead التقطيع
(1) Blood	(1) Stomach
(2) Urine	(2) Intestine
(3) stool	(3) Blood
(4) Vomitus	(4) Kidney
(+) (5) Hair/nail	(5) Liver
	(6) Brain
	(7) H / N / B / T Metals في ال

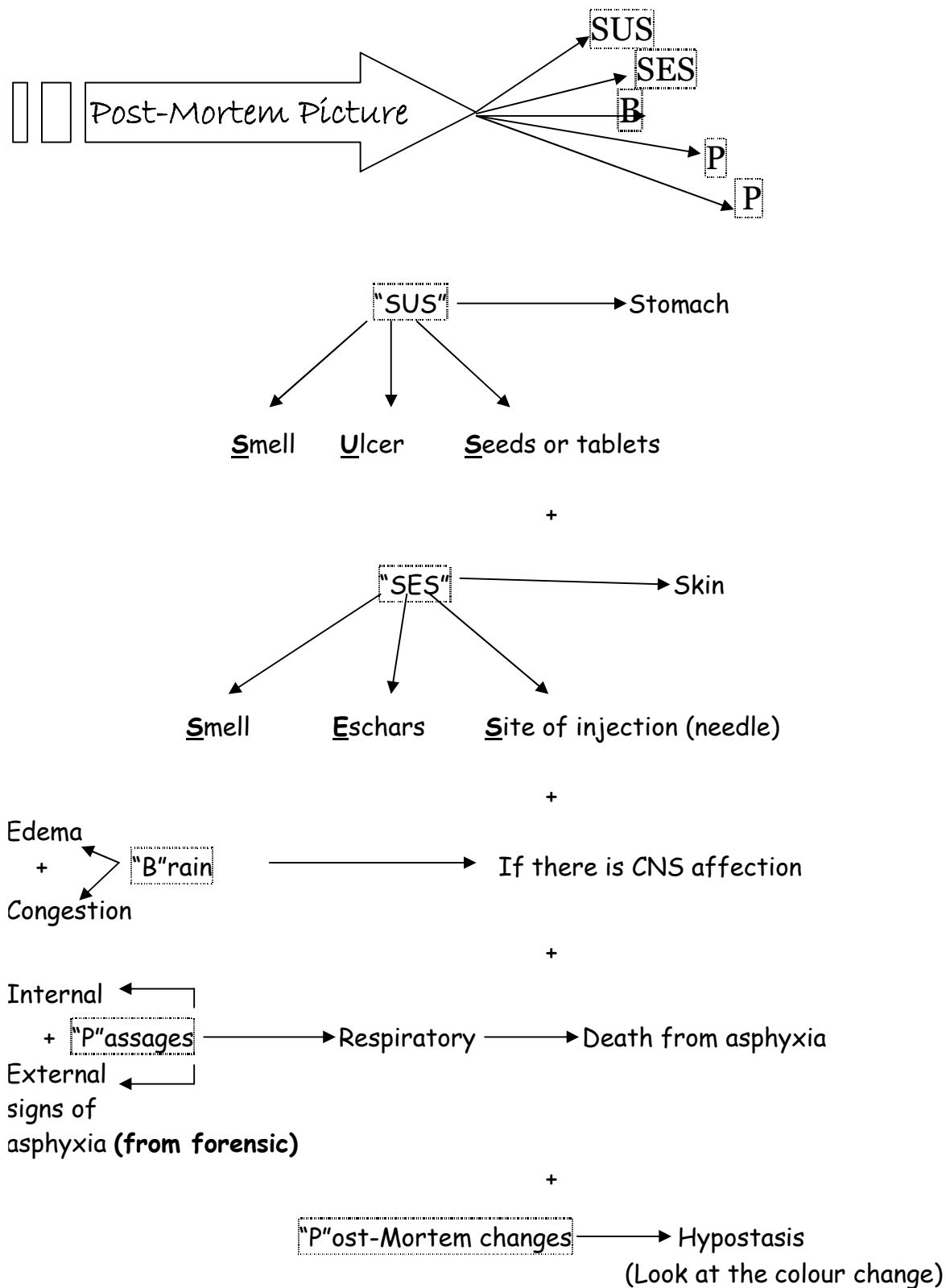
General toxicology

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1) GIT	• Nausea • Vomiting • Colic • Diarrhea
2) Heart	• ↓ Pulse • ↓ Blood pressure } Arrest
3) Sensory nerve ↑ then ↓	• Tingling • Numbness • Hypersensation • Hyperthesia • } then Anaesthesia
4) Motor nerve(N-M junction) ↑ then ↓	• Twitches • Tremors • Fasciculations • Convulsions } then Paralysis
5) CNS ↑	C H A I R Restlessness Irritability Anxiety Hypertension Convulsions
6) CNS ↓	<u>"3Cs"</u> • <u>C</u>oma • <u>C</u>yanosis • <u>C</u>entral asphyxia

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7) Renal failure	Oliguria + <u>A</u> <u>B</u> <u>C</u> then ↘ Anuria <u>A</u> <u>B</u> <u>C</u> <u>Albumin</u> <u>Blood</u> <u>Casts</u>
8) Hepatic failure	1- Pain + tenderness in Rt hypochondrium. 2- Jaundice + Bleeding 3- ↑ Bilirubin + ↑ SGOT + ↑ SGPT 4- ↓ Albumin + ↑ Prothrombin time



Treatment:

- 1- Prevention of further exposure.
- 2- Supportive or symptomatic treatment.

- 3- Elimination of poison from GIT.
- 4- Destruction of poison in GIT & absorption (local antidotes).

- 5- Excretion of the absorbed poison.
- 6- Counteraction of the absorbed poison (physiological antidote).

Treatment

1- Prevention of further exposure:

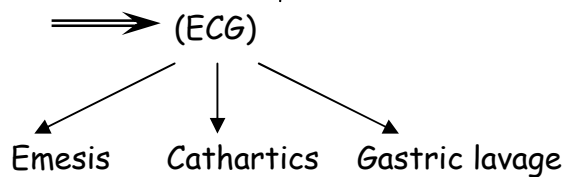
- Factory (Industrial exposure)
 - Masks, gloves
 - Periodic-Medical Examination
 - Removal of patients
- Clinic → i.e. Hospitalization
 - Addicts
 - Suicidal & Homicidal
- House → Accidental poisoning among children

2- Supportive & Symptomatic treatment:

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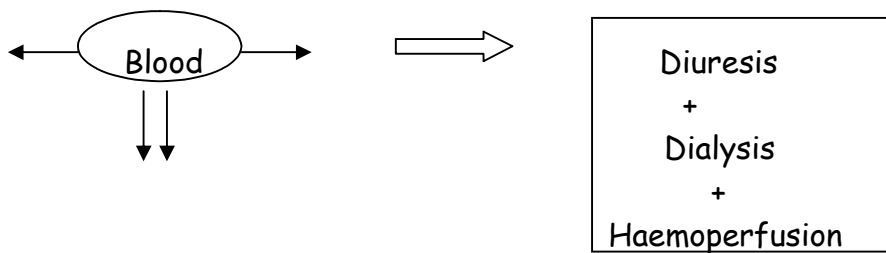
- Respiratory depression.
- CVS.
- Coma.

3- Elimination of poison from GIT:

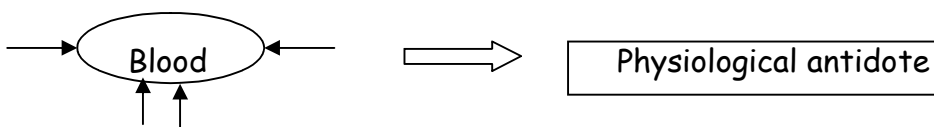


4- Destruction of poison in GIT & absorption: (Local antidotes)

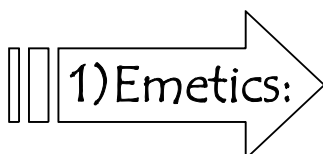
5- Excretion of the absorbed poison:



6- Counteraction of the absorbed poison:



3- Elimination of poison from GIT: (ECG)



a- Def: Vomiting (3hrs)

b- Types:

A-Mechanical

Gag Reflex

B-Chemical

Local
(Stomach)

Central
(C.T.Z)

Mixed

a- NaCl
(obsolete → cause death)

- Hypernatremia
- Convulsions
- Hypertension

b- Mustard Powder

Apomorphine

Contra → CNS
6mg → Adults
1-2 mg → children

Syrup of Epicac

1-Source: Plant (safe)

2-A.P: Emetine + Cephaline

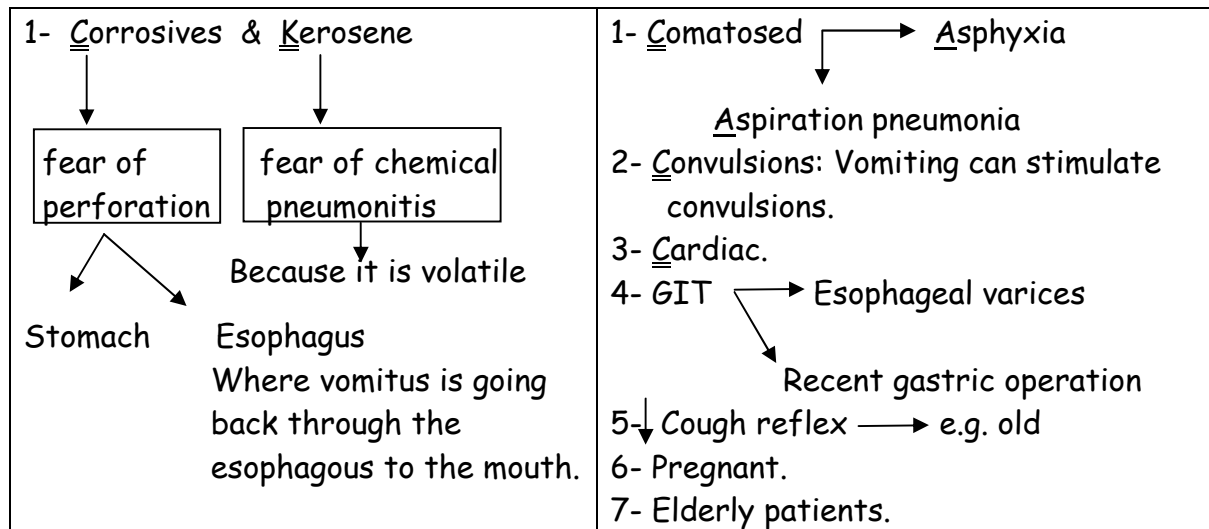
3-Dose: 30ml/30 min

15ml/30min for children

4-Action

3- Contraindications:

Poisons	Patients
---------	----------



2- Cathartics: "Purgatives"

a- Action: Faster passage of poison through GIT → ↓ absorption

b- Types

زيت
Castor oil

↓
Avoid in fat soluble poison

ملح (Osmotic)

MgSO₄ (30 g in 300 ml H₂O & 250 mg/kg)
(Osmotic Purgative)
10% solution in children

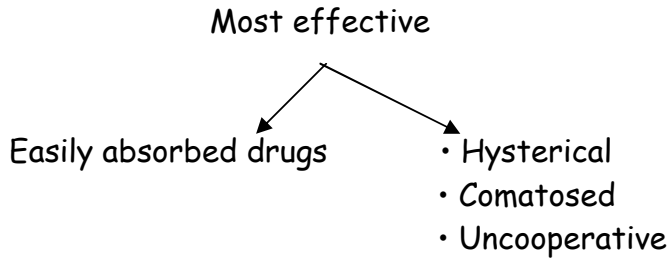
3- Gastric lavage:

a- Def. → Evacuation / Washing / Tube

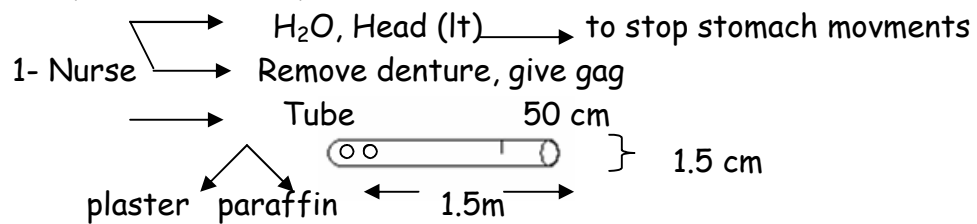
b- Indication → 3 hrs post-ingestion & emesis failed

Exception: can be done after 12 hrs in:

- 1) Secreted → e.g. Morphine+Antimony
- 2) Slow → Barbiturate
- 3) Sticky → Aspirin

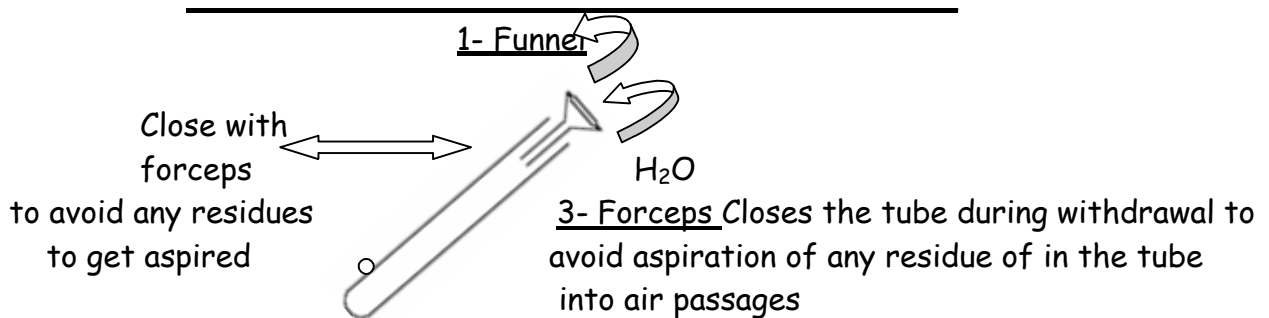
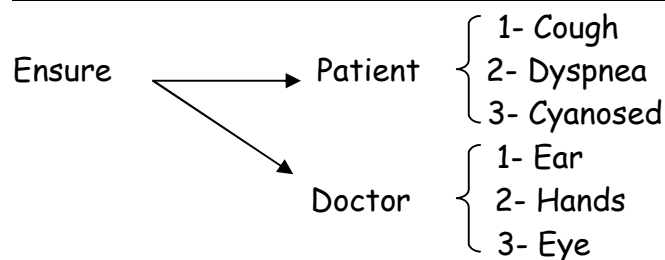


c- Procedure (Refere to book)



2- Patient → Swallow

3- Doctor → Introduction



d- Contraindication:

I- Absolute CI: 1- Corrosives → Perforation by tube because → friable tissue

II- Relative CI :

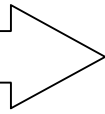
- 2- Kerosene (volatile) } insert cuffed endotracheal tube
3- Coma } —→ due to fear from aspiration pneumonia
4- Convulsions —→ Inhalation anesthesia (Ether) —→
to avoid ↑ freq. & severity of convulsions

e- Complications (Hazards):

- 1- Oesophagus —→ Perforation & bleeding
- 2- Trachea —→ Asphyxia
- 3- Lung —→ Aspiration pneumonia
- 4- Heart —→ Cardiac arrest
- 5- Psychic trauma
- 6- Gaging

3- Destruction of the poison in GIT:

Local antidotes



A - PHISCO-MECHANICAL:

1-Demulcent e.g. olive oil -egg white -milk → corrosives

2-Dissolvents e.g. 10% alcohol or glycerine → phenol
(followed by rapid gastric lavage)

3- Cotton

4-Charcoal (adsorbent)

a-origin : plant

b-uses: plants

metal

enterohepatic

*rew: bile to duodenum

c-dose: 50 gm / 500 ml H₂O every 4 hrs

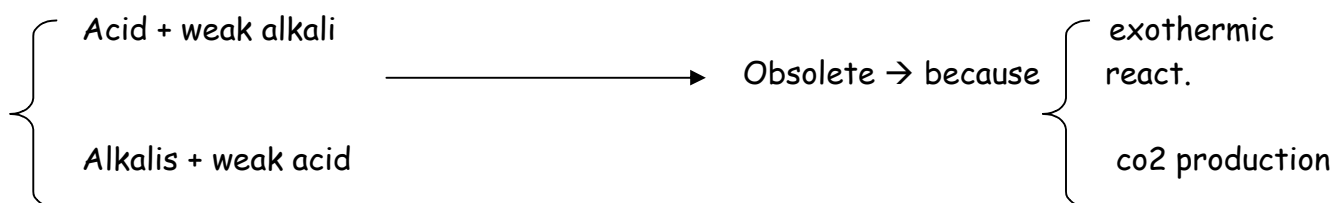
d-precautions : do not give it before syrup of epicac → it will be adsorbed

e- action : absorb the poison and it is not absorbed → raw charcoal

B-CHEMICAL:

By Chemical Reaction

1- Neutralization



2- oxidation H₂O₂ or KMNO₄

-Plants ← O₂ حبيب

-Organophosphorus ← O₂ عدو

-Cyanide ← راسبوتين

3- precipitations شاي ثقيل

a) Tannic acid الفلاح

- 1) Plants (الغيط)
- 2) Antimony (المستوصف)

b) $\text{Fe}(\text{OH})_3$ التفاحه $\longrightarrow$ Arsenic (Napolion)

c) MgSO_4 $\longrightarrow$ Carbolic acid

4) Reduction

a) Ferric $\xrightarrow[\text{Citrus fruit after meal}]{\text{vitamin C}}$ ferrous

b) Mercuric $\xrightarrow[\text{sulfoxylate}]{\text{Na formaldehyde}}$ mercurous .

4- ELIMINATION OF POISON :

1 - LIVER $\longrightarrow$ Detoxification (Biotransformation)

2- LUNGS $\longrightarrow$ Resp. stimulant

3- GIT $\longrightarrow$ Purgative

4- KIDNEY $\longrightarrow$ Diuresis

5- BLOOD $\longrightarrow$ Blood

KIDNEY

Diuresis $\begin{matrix} \nearrow \text{Types} \\ \searrow \text{Contraindication} \end{matrix}$

Types

1) Saline Diuresis ملح Na thio-sulphate ↓ معادن Heavy Metal Poisoning	2) Osmotic Diuresis ↓ Mannitol ↓ 10% ↓ 10gm ↓ IV infusion	3) Forced Diuresis				
		1) Principle	2) Types	3) Substance	4) Poison	5) Precautions
		Change PH of urine ↓ Ionization ↓ ↓ Absorption ↓ ↑ Excretion (Ion trap Phenomena)	1) Alkaline (PH > 7) 2) Acid (PH < 5)	*NaHCO ₃ *Na lactate *NH ₄ Cl *Vit C (Ascorbic Acid)	Acid *Salicylic acid *Babituric Acid *Amphetamine *Quinine	Fluid balance & electrolyte balance should be monitored

Contraindications of renal diuresis:-

- 1) Poison طريق

→

Not renal
- 2) Renal failure طريق مكسر
- 3) H₂O → Shock
- 4) K → Heart Failure

BLOOD

- a) Dialysis
- b) Haemoperfusion
- c) Plasma phoresis
- d) Exchange blood transfusion
- e) Chelators

I-Dialysis

*Indication	A) Peritoneal	B) Haemo (Artificial Kidney)
1) x x Diuresis		

2) Renal failure 3) Coma	<u>*Procedure</u> 1) Evaluate bladder 2) Catheter → dialysate fluid similar to plasma è dextrose, heparine è procaine 3) 2 L after 1h 4) Syphonage	<u>*Procedure</u> Blood + poison Peritoneal membrane cellophane Blood - Poison
<u>*Precaution</u> Dialysable drugs only!!	<u>*Uses</u> الكحوليات Methanol & Ethylene glycol	<u>*Disadvantages:</u> 4 HIGH "Ineffective" → 1) High ptn blood → 2) High Vol of Distribution → 3) High Lipid Bulk, passes the tissues → 4) High Molecular weight

1) Dialysis :

- Haemoperfusion → passage of anticoagulated blood via charcoal or resin columns .

- 1) Indication
- severe intoxication
 - high → barbiturates
 - hypothermia , hypotension , etc → coma

2) Procedure → adsorbs the poison

3) Effective for: removal of lipid soluble & ptn bound poisons e.g. barbiturates , salicylates & meprobamates .

NMT12

- Exchange bl. Transfusion → 1) xxx dialysis
→ 2) ↓ VD → highly conc. In blood
- Plasma pheresis → removal of the plasma (vol. of distribution from the blood replace it with another sub)

2) chelators :

-Def. → + metals → non - toxic comp. → soluble & ↓ urine

- Types :
- (5) {
- 1) BAL
 - 2) DMSA
 - 3) EDTA
 - 4) Penicillamine
 - 5) Desferol

1) BAL → Anti - lewisite
↓
British

= (2 - 3 Dimercaprol)

2SH 3 Routes of admin Disadvantage

→ Uses :

Lead	Mercury
Arsenic	Antimony
Gold	Bismuth

→ 2SH

→ 2 Analogues (DMSA & DMPS)

→ Routes of admin. : IM , eye drops & skin ointment

NEVER IV →→ embolism

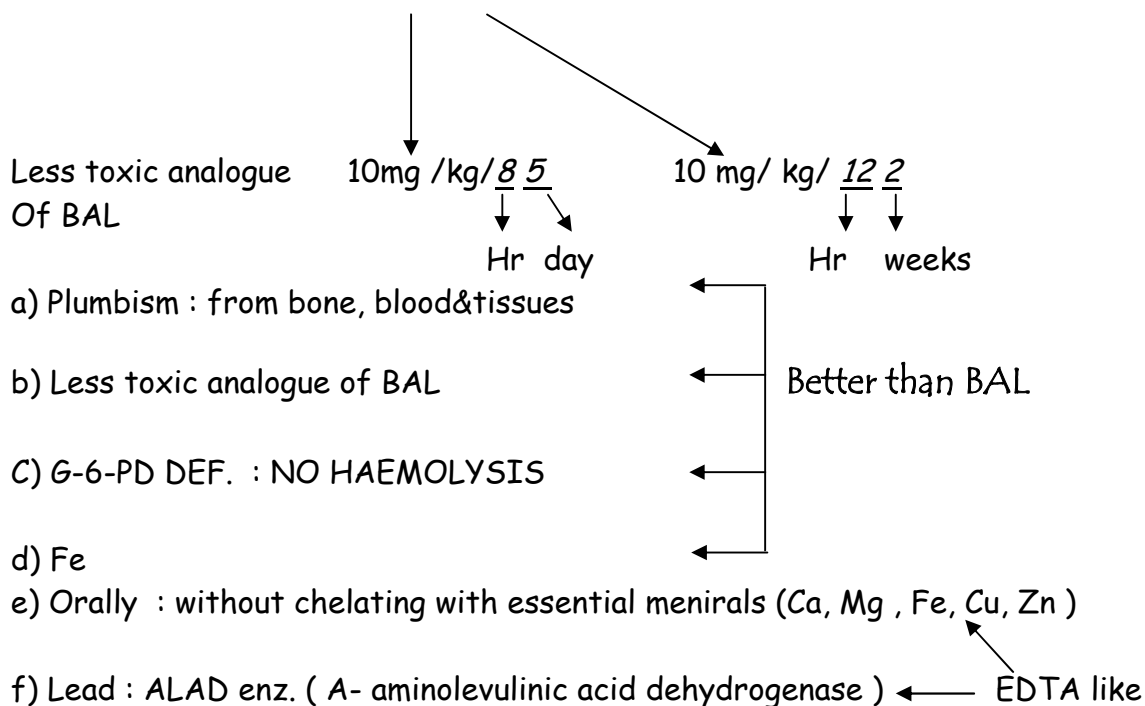
→ Dose: 2.5 mg / kg → 2.5mg/kg/6 2 → Hr days
 2.5mg/kg/12 7 → then days

Disadvantages of BAL:

- 1) plumbism (pb) : limited value in ttt as it chelates only lead in blood but not in bone & tissues .
- 2) pyrexia (anti-histaminics) → antihistaminics given to avoid allergic reaction .
- 3) bean (G-6-PD ↓↓↓) → haemolysis
- 4) BAL- Fe complex (iron) → more toxic than Fe

N.B. Answer for BAL + DMSA

2- DMSA Dimercapto-succinic acid (succimer)



3- D-penicillamine (cuprimine) :

→ source : penicillin

→ Dose : 1 capsule/6h/10 days (as Antib)

- copper & zinc toxicity
- chronic toxicity of lead & mercury
- Contain 1 SH group (mono-thiol)

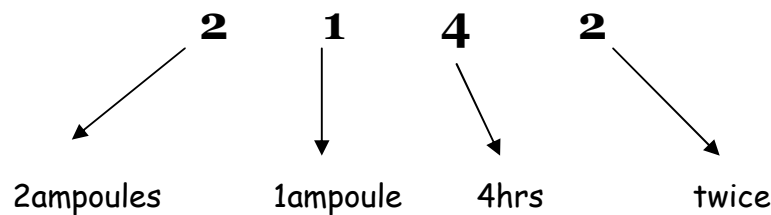
4- Desferol : (or desferoxamine)

- Fe toxicity
- Acts on iron in storage areas (ferritin & haemosidrin)

Dose

des fer ol

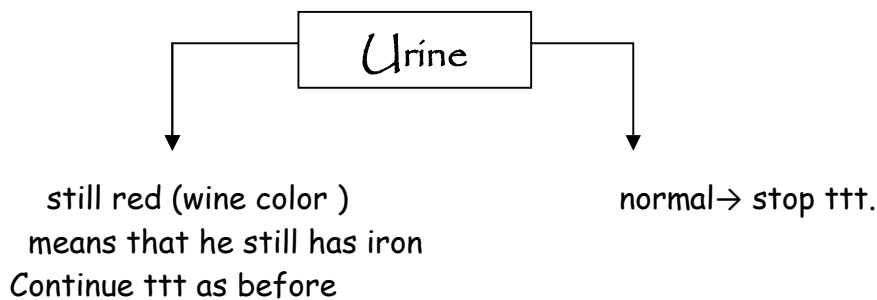
↓
دسته
↓
4hr



فریق کوره

1st : 2 ampoules

2nd : 1 ampoule every 4 hrs 2 times



BUT don not exceed 12 ampoules / day = 6 gm / day

Urine : normal → stop ttt

5- EDTA : (E thymine ~ diamine tetraacetic acid)

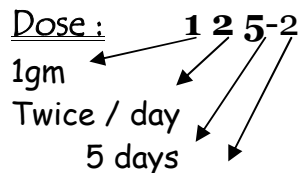
يجب اللبن → Ca

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→ Lead يحب الماء اكثر (ينزل في مواسير)

→ Glucose يذوب في السكر

Dose :
1gm
Twice / day
5 days



Stop ttt 2 days then continue (to give chance for pb)

- Types 3
- 1) di-sodium EDTA (has Ca) → lead toxicity
 - 2) di-sodium EDTA (non- Ca) → digitalis toxicity
 - 3) di-cobalt EDTA (kilocyanor) → cyanide toxicity

1- Di-sodium EDTA (with Ca)

+ Ca to spare body calcium , prevent chelation of Ca , prevent hypocalcaemia & tetany .

-If you Chelate any metal that has greater affinity for EDTa than Ca

e.g this is the case for lead which can replace Ca in complex forming poorly dissociable chelate that is rapidly excreted in urine .

2- Di-sodium EDTA (Non - Ca)

Given in digitalis toxicity because ppl with digitalis toxicity has hypercalcaemia

3- Di-sodium EDTA:

In cyanide toxicity

5- Counteraction of the absorbed poison:

*** physiological / systemic antidote

- 1) Chemical inactivator
- 2) Antagonistic antidote
- 3) Competitive antidote
- 4) Chelators (as before) + include it in answer

1) Chemical inactivators

e.g. N C B12

Na → Na thiosulfate → for metals → non toxic compounds

Ca → oxalic acid → inactivation

Ba → Hydroxycobalamine + cyanide toxicity → vit B12 (cyanocobalamine)

2) Antagonistic antidote:

Antagonise the pharmacological action of physiological mechanism .

e.g.

Atropine → Organophosphorus

Mephenisine → Strychnine
(Muscle relaxant)

3) Competitive antidote: antidote → compete with the poison for the receptor or compete with the receptor for poison

Examples : 3 M

a) **Morphine:** compete with the poison for receptors :

e.g. naloxone , nalorphine , levalorphine

Compete with Morphine on the opiate receptor

b) **Metals** : compete with the receptor for the poison

e.g. BAL & Resp. enz. compete for the Metals

c) **Mobeedat (organophosphorus)** : oximes compete with the receptor → choline esterase enz. For the organophosphorus → preventing its binding to the enz..

Supportive & symptomatic ttt :

* Supportive ttt :

- 1) Respiratory depression
- 2) CVS → shock or collapse
- 3) CNS → coma
- 4) Acute hepatic failure
- 5) Kidney failure

1) Respiratory depression: 3A

Air passages

- Suction tube (remove secretions , vomitus, FB)
- Endotracheal tube
- Tracheostomy tube (in laryngeal obstruction & edema of Epiglottis)

Air → Carbogen

- maintain respiration
- 95% O₂- 5% CO₂ (stim. Respiration)

Artificial respiration

2) CVS → SHOCK OR COLLAPSE

- 1) elevate the leg with head downwards
- 2) vital signs affection :
 - * Respiratory → ↓ → give O₂

* Temp. → ↓ → ttt by warming

* B.P. → ↓ → dopamine / dobutamine → ↑ BP
→ plasma expanders e.g. glucose, manitol, ...etc.

* Pulse → Digitalis
→ Defibrillator
→ Anti-arrhythmic drugs

3) CNS → Comatozed

2C { a) Change the posture (avoid bed sores & avoid pneumonia)
b) Catheterization (prevents urine retention & calculate amount of fluid coming out to balance fluid level)

c) Take care with respiratory affection (as before)

d) Care of cardiovascular (as before)

4-Kidney → Dialysis & Haemoperfusion failure

* R.F. Due to :-

Direct Cause of R.F	Indirect Cause of R.F
1-Mercury → Mictureiton	↓ Blood → Shock
2-Phosphorus	↓ H ₂ O dehydration or electrolyte imbalance

5-Liver Failure:-

Causes → a) Arsenic (Napolion)
b) Paracetamol

ttt:

Special diet → ↓ Protein
→ ↑ Glucose
→ +Vitamins → Vit K

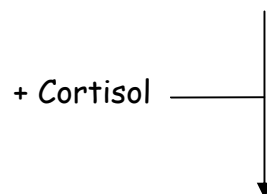
+ Electrolytes e.g. Ca-Gluconate -Glutathione

Because ↓ albumin → No carrier for Ca

*Symptomatic ttt:-

- 1) Cerebral Edema
- 2) Convulsions
- 3) Pulmonary Edema

1-Cerebral Edema → Osmotic Diuresis (By mannitol)



(Add it to any symptomatic ttt of edema)

2-Pulmonary edema → Osmotic Diuresis

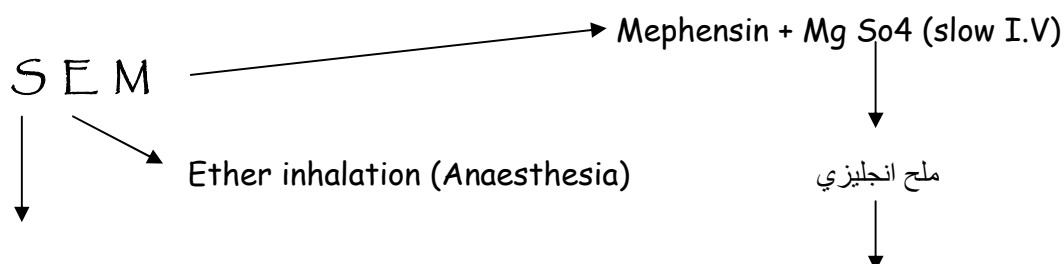
(Mannitol)+ Cortisone

+ Suction → Open passages by bronchodil.
+ O2 under pressure

3-Convulsions:-

Strychnine → Most common Cause

ttt of convulsions → ttt of Strychnine



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Succinyl-Choline

— (Ms.relaxant)



10mg (slow IV)

+ 2B (Any Convulsions)

* Barium → Diazepam "Valium"

* Barbiturate

-IM → acts as Ms relaxant

-Oral → Acts as purgative

Specific Toxicology Note



NOTES OF MEDADTEAM

Contents:
**All what you need
in
Specific Toxicology
2010**

**Only
9.5 L.E**



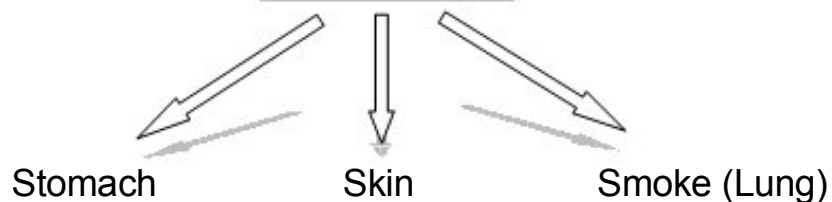
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Specific Toxicology

Chapter 2

Corrosives



Scheme:

- 1- Effect of Poisoning.
- 2- F.D
- 3- F.P
- 4- Action
- 5- C/P
- 6- P.M.P
- 7- Ttt

(+/-)

- 8- Source & Uses
- 9- Kinetics
- 10- Diagnosis (Investigations)
- 11- D.D

Inorganic (Typical)	Organic (Atypical)
1- Strong 2- Local 3- XXX Emesis/Lavage 4- E.g.: -H ₂ SO ₄ -HNO ₃ -HCL Potash	1- Mild 2- Mixed ↗ Local ↘ Remote 3- ✓✓✓ Emesis & Lavage 4- E.g.: -Carbolic acid -Oxalic acid

Oral
why?

Specific Toxicology

	H ₂ SO ₄ (Acid)	Potash (Alkalies)
1-Source & Uses:	- Chemicals → Batteries → Laboratories	-Chemicals → Cleaning
2-Diagnosis (Investigation)	-As before	-As before
3-Condition Of Poisoning:	→ Accidental → Child Workers Addicts Therapeutic → Suicidal → XXX → Homicidal → Face (Revenge) Disfigurement Blindness	→ Accidental → Children (Milk) XXX XXX
4-Fatal Dose:	4 c.c	K ₂ CO ₃ Na ₂ CO ₃ ↗ ↘ x2 15gm 30 gm
5-Action:	Local <u>ONLY</u> : A-Hygroscopic effect: (Absorbs Water From Air) ↙ ↘ ↘ Stomach Skin Smoke B- Coagulative necrosis	A-Hygroscopic effect (Milder) B- Liquefactive necrosis (Slimy & Soapy appearance)
6-C/P:	→ Laryngeal edema & Asphyxia -Smoke → Eschars (Colored ulcers) H ₂ SO ₄ & Black -Skin → -Stomach → 1-Pain & Swelling ↓ 4 <u>S</u> 2- <u>S</u> wallow (Dysphagia) <u>S</u> peech (Dysarthria) <u>s</u> hock (Neurogenic) <u>s</u> tomach (<u>P</u> erforation) →	-√√√ NH ₃ Fumes. -Eschars White √ √ √ √ Rare

Specific Toxicology

	3-Vomiting (Acidic Haematin) ↓ Café Brown ↓ 4-Constipation ↓ 5-Dehydration ↓ 6-Shock ↓ -Temp ↓↓ -Pulse ↓↓ -B.P ↓↓ -Resp. ↓↓ Rapid & weak Shallow & rapid 7-Oliguria	3 Vomiting (Alkaline Haematin) ↓ Soapy ↓ 4-Diarrhea ↓ 5- ✓ ↓ 6- ✓ ↓ -Temp ✓ -Pulse ✓ -B.P ✓ -Resp. ✓ 7- ✓
7-Cause of Death & fatal Period:	> In acids S A D / P C ↓ ↓ ↓ ↓ ↓ Shock (Neurogenic) Asphyxia (Few hrs) Dehydration (12 Hrs) Perforation (Days) Cachexia & Emaciation (Weeks) ↓ Immediate > In alkalis ↓ Stricture	
8-P.M.P:	<u>SUS</u> 1- Ulcers & Perforation + <u>SES</u> 2- Eschars (Black) + <u>Brain</u>	→ 1- Ulcers → 2- Eschars (<u>White</u>)

Specific Toxicology

	+ <u>Passages</u> 3- Internal & External signs of asphyxia + <u>PM changes.</u>	→ 3- Internal & External signs of asphyxia ⊕ <u>Narrowing of lower end of esophagus</u>
9- ttt:	1- <u>Supportive & Symptomatic ttt:</u> → Surgical Operations → 1- Colon Bypass 2- Gastrectomy 3- Dilatation + >2 weeks → Friable Tissues → 4- Jej. deposition 5- Cortisone + Antibiotic → To prevent Stricture → SAD / PC → + Pervious Stuff → + Morphine → 5-10 mg IV for pain → Laprotomy + Antibiotic 2- <u>E.C.G</u> XXX 3- <u>Local Antidote</u> - Demulcent - Neutralisation XX due to.... 4- <u>Dialysis, Diuresis & Heamoperfusion</u> XX 5- <u>Physiological Antidote</u> XX Doesn't reach Blood <u>Syptomatic ttt: Skin ttt:</u> - Wash by water - Antibiotics - Skin Graft	

Specific Toxicology

	Carbolic Acid "Phenol" (4) "4 Points"	Oxalic Acid (أبيض)
	Renal Failure Local anaesthesia Coagulative Necrosis -CNS ↑ & ↓ -CVS	يبيض النحاس Ink Remover Similar to السكر الملح "أبيض" يحب اللبن Ca فيه
1-Fatal Dose:	4 gm	15gm
2-Fatal Period:	-Early 4 Hrs -Delayed 4 Days	-Rapid 15 min -Delayed 15 Days
3-Diagnosis (Investigation)	-As Before	-As Before
4-Source & Uses:	-Coal -tar -Disinfectant (Dettol)	-Rhubarb -Ink Remover
5-Condition of Poisoning:	1-Accidental: -Children -Workers 2- Suicidal: -Cheap -Easily Obtained -Local Anaesthesia 3- Homicidal: XXX Due to characteristic Smell	1-Accidental -Workers -Children Similar to Sugar & Salt crystals
6-Action:	Mild & Mixed 1-Local: 1-Stomach - Coagulative necrosis - Local anaesthesia	1-Local: 1- Mild Corrosives + Coagulative necrosis.

Specific Toxicology

	2-<u>S</u>kin & Eschars (Brown) 3-<u>S</u>moke & Characteristic Smell 2-<u>R</u>emote: 1- <u>C</u>NS ↑↓ as before 2- <u>C</u>VS ↓↓ as before 3- Renal failure as before	2- White Eschars. 3- Smoke & 2-<u>R</u>emote: +Ca → Ca Oxalate Crystals ↓ Ca in Blood ← 1-<u>C</u>ontraction of Ms. & as before 2- <u>C</u>VS affection & as before 3-<u>C</u>ollecting tubules & Renal Failure
7-C/P:	1-<u>S</u>tomach & Pain & Vomiting ↓ Rapidly Local Anaesthesia ← XX 2-<u>S</u>kin Chocolate Brown Eschars 3-<u>S</u>moke & Smell 4-<u>C</u>NS as before +Miosis 5-<u>C</u>VS as before +Arrhythmia 6-Renal Failure & as before +Urine Green in color Once exposed to air Oxidation ↓ Hydroquinone	1- Pain & Vomiting <u>White</u> due to Ca oxalate Crystals 2- <u>White</u> Eschars 3- in chronic Toxicity ONLY. Remote: 1- Contraction (as before) ↘ "Convulsions" Resp. Ms" ↓ Peripheral Asphyxia 2- CVS(as before) & Arrhythmia 3- Collecting Tubes + <u>White</u> Ca Oxalate Crystals

Specific Toxicology

8-ttt:	<u>1-Supportive & Symptomatic</u> <u>ttt:</u> As before + Met-hemoglobinanaemia ↓ Corrected by Vit C Or Methylene Blue 1mg/Kg <u>2-Elimination of Poisons From</u> <u>GIT: (ECG)</u> - No Vomiting - Done ↔ - Thickened Stomach ↓ So, No fear from perforation <u>3-Local Antidote:</u> -Demulcent لين -Alcohol 10% كحول (Dissolvent) -MgSO₄ ملح 4-D. & D. & H. <u>5-Physiological Antidote:</u>	<u>1-Supportive & Symptomatic</u> <u>ttt:</u> -RF & Resp.Failure } as before -RF & Renal Failure } ↓ Diazepam ↓ 2mg -Convulsion & as before <u>2-Elimination of Poisons From</u> <u>GIT: (ECG)</u> خ √√√ <u>3-Local Antidote:</u> Milk (Demulcent) ↓ Form ← To precipitate Ca Oxalate Oxalic acid 4-D. & D. & H. √√ <u>5-Physiological Antidote:</u> IV Ca Gluconate
9-Cause of Death:	<u>1-Respiratory Failure & Central</u> <u>Asphyxia</u> <u>2-Renal Failure</u> Direct <u>3-CVS</u> Cardiac Arrest	<u>1-Respiratory Failure &</u> <u>Peripheral Asphyxia</u> <u>2-Renal Failure</u> Obstructive <u>3-CVS</u> Arrhythmia

Specific Toxicology

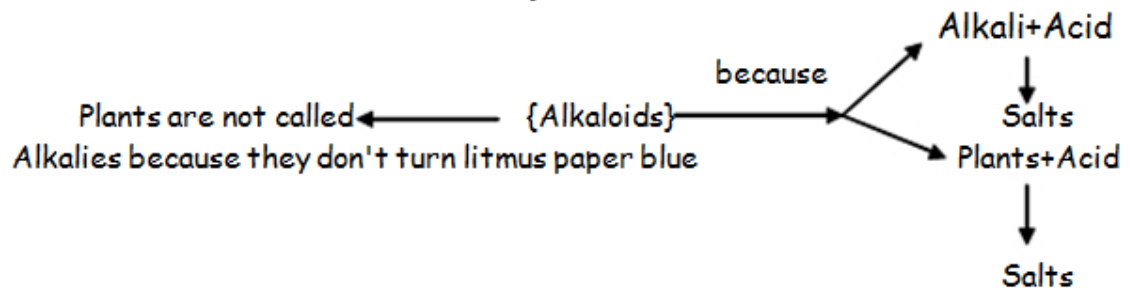
11-D.D:	<u>3C</u> Coma Cyanosis Constricted Pupil 1- Morphine 2- Carbolic Acid 3- Organo-Phosphorus 4- Pontine hge	<u>In Stomach:</u> Arsenic → White Powder ↓ Diff. from Ca Oxalate By Reinsch Test
---------	---	---

Oral:

Role of Milk:-

<u>H₂SO₄</u>	<u>Carbolic Acid</u>	<u>Oxalic Acid</u>
Demulcent	Coagulation ↓ To spare stomach proteins	Precipitation

Plant poisons



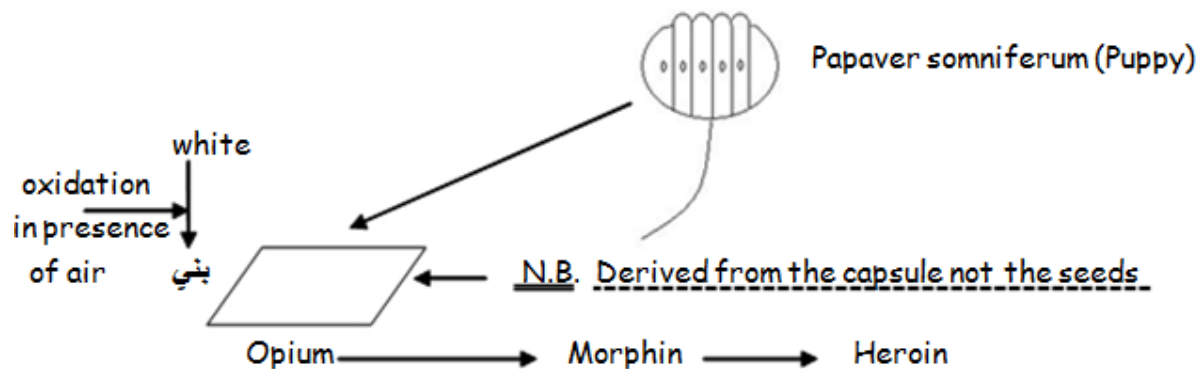
OPIUM (Morphin) → 3V
→ 5C

General ↓

Characters of plants:

- 1) Alkaloids → Doesn't turn litmus paper blue
- 2) Flower → Far action
- 3) Local Antidote →
 - 1-Charcoal (adsorption)
 - 2-Tannic acid (PPT)
 - 3-H₂O₂ & KMNO₂ (Oxidation)

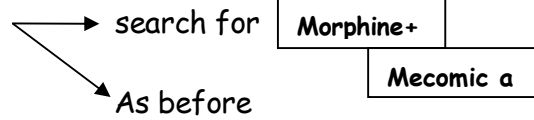
1-Source



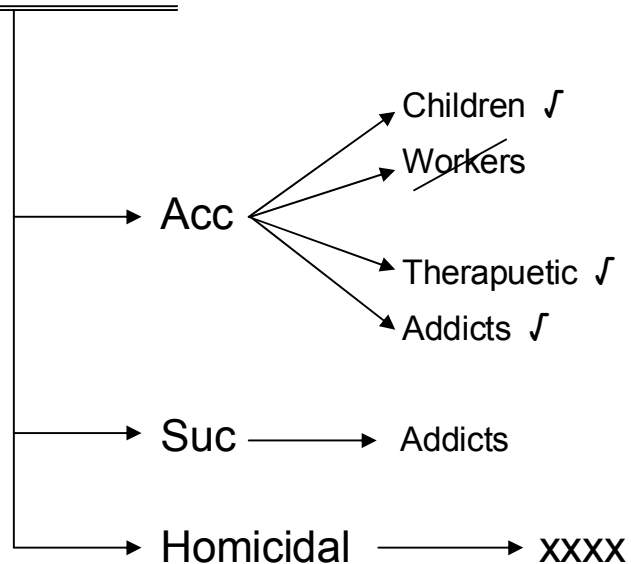
Opium	Morphine
Smell (meconic.a)	XXX
Ingested	Injected

2-Uses

- 1- Pain killer e.g:- Burns, Metals & corrosives
- 2- Morphin addicts treatment "gradwal withdrawal"

3-Dignosis

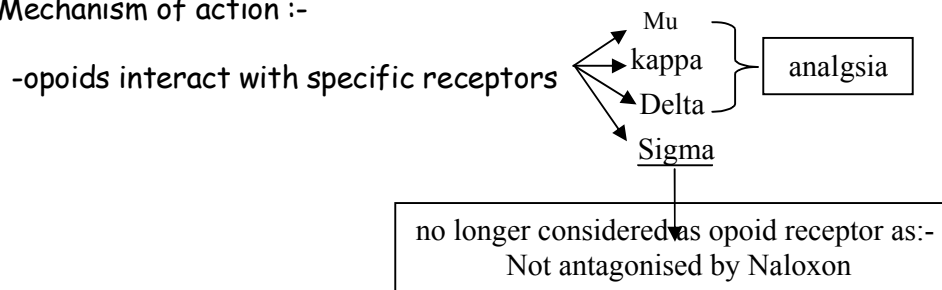
- Routin CBC & serum electrolyte.
- chemical analysis (morphine + mecomic acid).
- Chist X-Ray to diagnosis of pulmonary edema.
- ECG for hypoxic effect & arrhythmias.

4-C.of poisoning

Action+ C/P

3V ↑ ← Action → 5C ↓	C/P
↑ & ↓	skin boils, cellulites & needle tracks are observed in IV drug addicts
1- ↑ <u>V</u> agus	↓ BP, ↓ Pulse, ↓ Resp
2- ↑ <u>V</u> omiting center	Vomiting → smell of opium
3- ↑ <u>V</u> CC (Visual constrictor Center)	Pin point pupil (fixed)
4- ↓ <u>C</u> ortex (sensory)	Euphoria → Dysphoria (due to over dose)
5- ↓ <u>C</u> ough cente`r	Pulmonary edema (Stertorous resp) → (smell of opium)
6- ↓ <u>C</u> enter of heat	↓ Temp
7- ↓ <u>C</u> onsciousness{CNS}	Coma, Cyanosis, Central asphyxia
8- ↓ <u>C</u> olon & Bladder	Constipation, Urine retention

Mechanism of action :-



Withdrawal syndrome :-

1-Onset :- 8-12 Meperdine

2-4 Methadone

2-Symptoms :- Lacrimation, Sweating
rhinorrhea, nasal congestion

myalgia, diarrhea & abdominal cramps

3-Peak:- 36-48h subside:- 72hrs &
occasionally last:- 7-10 days

4-Treatment:- clonidine & naltrexone.

D.D : 3 C → Coma
 → Cyanosis
 → Constricted pupil

Carbolic acid	Morphine	O.P	Pontine hge.
History	History	History	No History
Smell <u>characteristic</u>	<u>Meconic acid</u>	<u>Garlic</u>	No smell
Low temp.	Sub normal	low	<u>hyperthermia</u>
<u>Irregular pulse</u>	Slow & full	slow	
Constricted pupil	<u>Fixed P.P.P</u>	Constricted	Constricted
normal	normal	<u>convulsions</u>	<u>quadriplegia</u>
Chemical analysis	Chemical analysis	Chemical analysis	<u>No Chemical analysis</u>

Urine : Green

TTT :

- 1) S&S → Resp. ✓✓✓
 2) ECG → - even if injected
 - cuffed endotracheal tube (v.imp.)

Due to ↓ cough reflex
 ↓
 avoid asp. pneumonia

3) local antidote:

- a) charcoal
 b) tannic acid
 c) H_2O_2 , $KMNO_2$

4) D & D & H

5) physiological antidote → Antagonists → Atropine (1-2 mg)
 Competitors

5) physiological antidote Competitors

Agonist - Antagonist
levallorphan 1mg
Nalorphin 10mg

Antagonist
*naloxone 0.4mg/kg/15mi

- uses:
- acute opioid
- clonidine
- diagnosis of opioid addiction
- treatment of coma of unknown cause

* naltrexone 0.1 - 0.4 mg iv
Repeated several times

Cause of death : →

- Central Asphyxia
- pulmonary edema
- arrhythmias
- brain damage

Atropine , Hyoscyamine & Hyoscine

Diagnosis : →

Tropine + Tropic acid

Search for them in similar way as before.
From all part of plants:

Sources:

- 1) Datura fastiosa
- 2) Datura stramonium
- 3) Atropa belladonna
- 4) Hyoscyamine

release →

Atropine
Hyoscine
Hyoscyamine

Uses:

- 1) ophthalmology>>>> mydriatic
- 2) GIT >>>>> antispasmodic
- 3) Anaesthesia $\begin{cases} \rightarrow \uparrow R.C \\ \rightarrow \downarrow \text{Secretions} \end{cases}$
- 4) Toxicology $\begin{cases} \rightarrow \text{Morphine} \\ \rightarrow \text{O.P. aconite} \\ \rightarrow \text{Digitalis.} \end{cases}$
- 5) chest>>>> in asthma *bronchodilator*.

Cause of death : $\longrightarrow$ central asphyxia(within 24h)

C.of poisoning:

Acc.	Suic.	Homicidal
- Children - Therapeutic - Addicts $\begin{array}{c} \text{MAN} \\ \swarrow \quad \downarrow \quad \searrow \\ \text{Marijuana} \quad \text{Nutmeg} \quad \text{Atropine} \\ \text{(hepatotoxic)} \\ \downarrow \\ \boxed{+ \text{Jaur}} \end{array}$	- Addicts	- Road poison (<u>hyoscine</u>) - Assaults $\begin{array}{cc} \swarrow & \searrow \\ \text{Robbery} & \text{Rape} \end{array}$

Actions :

Atropine & hyoscyamine	Hyoscine
1) CNS $\uparrow$ $\longrightarrow$ $\downarrow$ 2) Peripheral receptors $\swarrow$ ACH. $\searrow$ Muscarinic	$\swarrow$ High $\longrightarrow$ 1) CNS $\downarrow$ (used in case of mania , Motion sickness, parkinsonism, Obstetric analgesia) 2) Peripheral $\longrightarrow$ similar to atropine & hyoscyamine but <u>weaker</u>

Clinical picture:**Plant Poison**

- 1 $\longrightarrow$ Dry as bone
- 2 $\longrightarrow$ Red as beet root
- 3 $\longrightarrow$ Hot as hare
- 4 $\longrightarrow$ Blind as bat
- 5 $\longrightarrow$ Mad as wet hen

- 6 $\longrightarrow$ Bladder lose its tone
- 7 $\longrightarrow$ Heart runs alone

Peripheral actions :

1) ↓ Secretion → Sweat , Saliva , Secretions (bronchial)



(dysphagia, thirst & hoarseness of voice)

2) V.D. → Rush

3) ↑ Temp.

4) Mydriasis & Fixed Non reactive Pupil

5) Constipation & Urine retention

TTT:

4×2

1- S& S → Resp.

2- ECG + local antidote even after 12h as anticolenergic agent
 Delay gastric emptying

v.v.imp.

Cold foment → for atropine fever (v.v.imp.)

Catheter → for urine retention (v.v.imp.)

v.v.imp.

Enema for constipation

Sedative & tranquillizers → in stimulation stage (v.v.imp.)

Stimulants → in depression stage

3-D & D

4-physiological antidote

A-Pilocarpine 10mg IV

(peripheral action only)

B-Eserine (physostigmine) 1-4mg

Easy To Pass BBB
 So, act centrally & Peripherally

peripheral action

central action (it can cross BBB)

in hospital & ECG for fear of

arrhythmias

↓ Pulse

D.D.

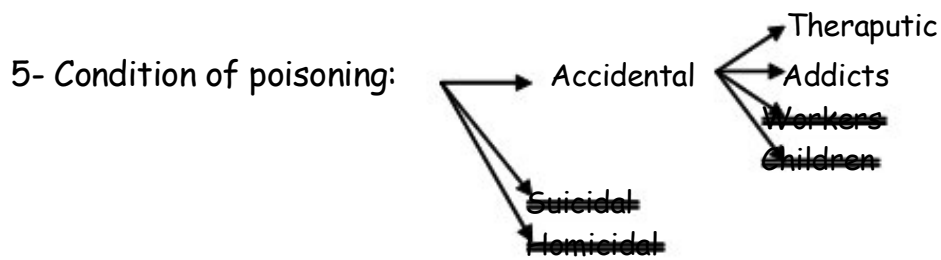
	Atropine	Ethyl alcohol
1- Smell	-----	Characteristic
2- Temp.	↑↑	↓↓↓
3- Pupil	Dilated & fixed	Changeable (Mc Ewin's sign)
4- Skin	Hot, dry & flushed	Moist & pale
5- Vomiting	-----	May occur
6- Delirium	Occupational	Tremors on withdrawal
7- Chemical analysis	+ve	+ve

Cocaine

3 C

Catecholamines
CNS ↑ then ↓
Cutaneous anathesia

- 1- Sources: Leaves of erythroxylon.
- 2- F.d: Sympathomimetic 30 mg.
- 3- F.p: 2 hrs. ساعتين
- 4- Diagnosis: as before
+ search for cocaine metabolism in urine.



Action 3C	C/P	
1. ↑. <u>C</u> atecholamine release & ↓. uptake. 2. <u>C</u> NS stimulation then depression. (psychosis) 3. <u>C</u> utaneous anaesthesia	Stimulation	Depression
	1. C.V.S: ↑. BP, ↑ pulse. → 2. Resp: ↑. Rate & depth. 3. CNS: CHAIR + psychosis + Hallucination + Delusions + Illusions + Euphoria + <u>Alertness</u> ↓ ↑. Quality not Quantity 4. Cutaneous anaesthetic effect. X	↓↓↓↓ cardiac arrest ↓↓↓↓ Coma, Cyanosis, Central asphyxia. Cutaneous anaesthesia.

Cause of death:

- 1- Cardiac arrest (minutes)
- 2- Central asphyxia (ساعتين)

Treatment:

1- S & S → 1- Care of respiration.

2- Care of C.V.S.

2-ECG → √√√

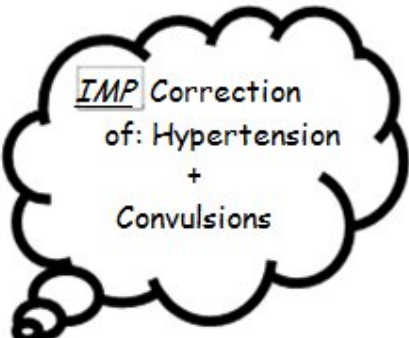
3- Local antidote → 1- Charcoal.
2- Tannic acid.
3- H₂O₂ & KMNO₂.

4- D & D → √√√

5- Physiological antidote → ××××

Inhaled → Nose → Wash with saline.

Injected → Wash with ice.



IMP Correction
of: Hypertension
+
Convulsions

Digitalis

Dysrhythmias
Dye vision
Diarrhea
Drowsiness
Dermatological

1- Source —→ Digitalis Lanata Or
 ~ ~ purpureae.

A.P —→ Digitalin
 Digitoxin.

2- F.d —→ ثلاثين 30 mg —→ digitalin
 5 mg —→ digitoxin.

3- F.p —→ Day —→ 24 hrs.

4- Diagnosis —→ as before + ECG + Electrolytes + Digitalis
 ↑
 search for

5- Uses —→ 1- CHF
 2- Atrial arrhythmias.

6- C. of poisoning —→

→	Accidental	→	Therapeutic
		→	Children
→	Suicidal	✓✓	
→	Homicidal	× ×	

Action:

Mode of action	Therapeutic
Inhibition of Na-K ATPase enzyme <u>Intracellular</u> ↑ Na ↑ Ca ↓ Yeast <u>Extra cellular</u> ↑ K (acute toxicity) ↓ K (chronic toxicity)	1. +ve ino. → ↑. contractility 2. -ve chrono → ↓. HR 3. ↑renal blood supply (diuresis & ↓B.P.)

Toxic Dose	C/P
1. Heart → Autoimmunity 2. Eye → Dye vision 3. GIT → Irritant 4. Skin → Allergy 5. CNS	→ Dysrhythmias (details in next table). → Green-yellow vision / Photophobia / blurred. → Nausea, vomiting, colic, diarrhea → Urticaria & Gynecomastia. → Drowsiness, confusion, hallucination, restlessness, frank psychosis.

C/P of Heart:

Tachycardia		Bradycardia
Atrial	Ventricular	1. Sinus bradycardia. 2. Sinus arrest. 3. A-V block.
1. A. tachycardia. 2. A. flutter. 3. A. fibrillation.	1. Extrasystole. 2. V. tachycardia. 3. V. fibrillation.	

Treatment: of Digitalis toxicity

1- S & S → Care of the heart

Anti-arrythmic drugs

APPL

Atropine
(1-2 mg)

Pacemaker

Phenytoin

Lidocaine

Electrolyte

↓ K → KCL

↑ K → Insulin + glucose
& ↓ Mg → MgSO₄↑ Ca → Na₂EDTA

2- ECG → √√√

3- L.A. → as before √√

1- Charcoal.

2- Tannic acid.

3- H₂O₂ & KMNO₂.

4- D. & H → √√√

fragment antibody ←

5- Physiological Antidote → Digibind (Eab) → 40 mg1- Preparation ⇌ خروف

Digitalis injected →

Ab

formed against digitalis

Fragment it →



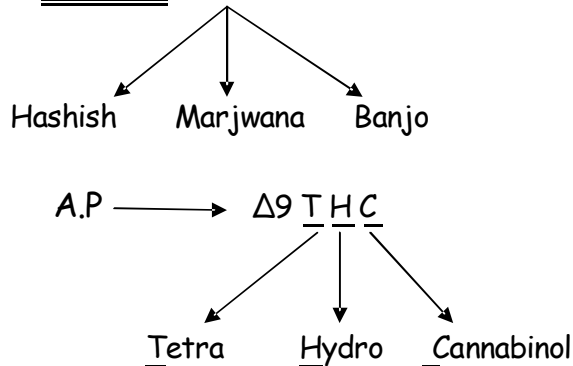
2- Dose → 40 mg/ 20min (IV infusion).

3- Action → ↑ digitalis excretion & reversed tissue binding.

Hashish (Systems)

F.P
 Half day → 12 hrs
 F.D → 2-8 gm
 (2 cigarettes)

1- Source: Cannabis/ indica



2- Investigations → As before + Δ9 THC

3- C. of poisoning

→ Accidental	→ Abusers
→ Suicidal	✓✓✓ very rare
→ Homicidal	XXX

Action:

Psychoactive:

CNS ↑ & ↓

- 1- Dose
- 2- Type
- 3- Personality (Mood)
- 4- Previous exposure

C/P

Psychological & Neurological	Eye	Resp.	C.V.S	GIT	Reproduction
1- 25 mg/kg <u>THC</u> ↓ Sense of well being. (Euphoria)	Red Eye (Conjunct. cong.)	↓ ppt. to cough ↓ Central asphyxia	↑. HR ↓ PPt. to angina	↑appetite (specially sweets due to induced hypoglycemia)	↓sperms + ↓testosterone ————— ↓ovulation (not marked as in males)
2-250 mg/kg <u>THC</u> ↓ <u>Inc. senses:</u> · Smell · Sound · Touch · Colour					
3- >250 mg (details later)					

C/P (followed) :

Psychological & neurological

3- >250 mg:

1. Sexual Hallucination.
 2. Space & time disorientation.
 3. Traffic accidents.
- Impaired attention & concentration.

Cause of death:

- 1- Central asphyxia.
- 2- Car accidents.

Treatment:

1- S & S → Care for respiration.

2- ECG → √√√

3- D & D & H → √√√

4- Local antidotes → 1- Tannic acid

2- Charcoal

3- H_2O_2 & KMNO_2

5- Physiological antidote → Caffeine + Tea (strong)
(CNS stimulant)

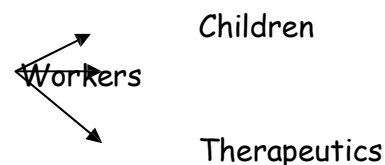
Because the patient is
nearly comatosed,

STRYCHNINE

S

- 1) **Source:** Strychnus nux vomica seed (Crushed powder)
- 2) **F.D:** Thirty (30 mg)
- 3) **F.P:** ساعتين (2 Hours)
- 4) **Uses:** -Stomachic sense فاتح للشهية but no longer used in medicine
 - سم فئران (rodenticide)

- 5) **Condition of poisoning:** -Accidental



- Suicidal X-(Severe Pain)
- Homicidal X-(Severe Pain and bitter taste)

- 6) **Investigations:** الخوارج و التقطيع

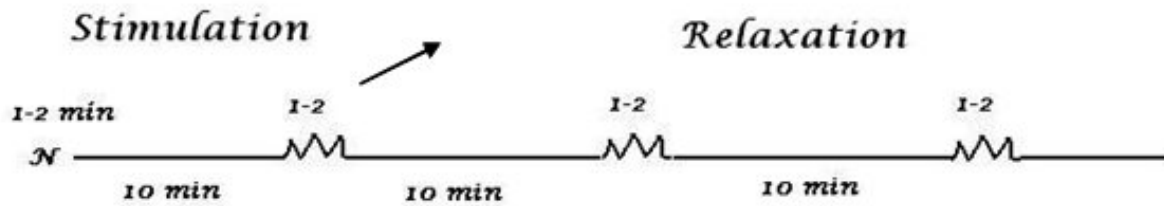
7) **Action:**

- 1-Spinal Cord → Synaptic resistance
(Glycine) قبل ناظر المحطة

It competitively blocks the receptors for glycine = Major inhibition to a neurotransmitter in the spinal cord.

This causes : 1- ↑ excitability → seizures

- 2-Stimulus → Contraction of all muscles
(No reciprocal innervations)
- 3-Stimulation of CNS → 30%

8) Clinical Picture:

1- Spasm of Muscles → Face (Risus Sardonius)
 → Extensors of body
 → Flexors of U.L.

1- Severe Exhaustion
 → (2) Death

2- Sensory Stimulus
 → Contract Stimulus
 أي Stimulus

10 min of Rest في الـ
 → Contraction

Tmp: Opisthotonus Position
 Resp. Ms. → Peripheral asphyxia
 → (1) Death

2- Sympathatic Stimulation
 - Bl.Pr.
 - Pulse
 - Resp. + Mydriasis + Bulging
 - Temp.

3- Suffer till end → Concious

9) D.D:

1) Tetanus	2) Epilepsy
1-History of Wound	1-Loss of conscious
2-Bacterial → Cl. Tetani	2- One attack only (Not Severe)
3- Trismus → Lock jaw	3- post history of illness
4- In state of relaxation, the muscles are Tonic	4-tonic and clonic
5- delay onset	

10) Treatment

1 - Supportive and symptomatic

Supportive : 1 - Precautions to prevent a new attack by :

- Keeping the patient in a quiet dark room.
- Opening airways and assisting ventilation

2 - Treatment of muscle spasm by

- Mild cases → Diazepam 0.1 - 0.2 mg/kg IV
- Severe cases → Pancuronium 0.1mg/kg IV

Symptomatic :

- Lactic acidosis → NaHCO_3 IV
- Hyperpyrexia → cold foment

2 - ECG

- Emesis is contraindicated → New attack
- Gastric lavage ✓ but may cause a new attack

Airway and seizure control have a priority over the decontamination procedures

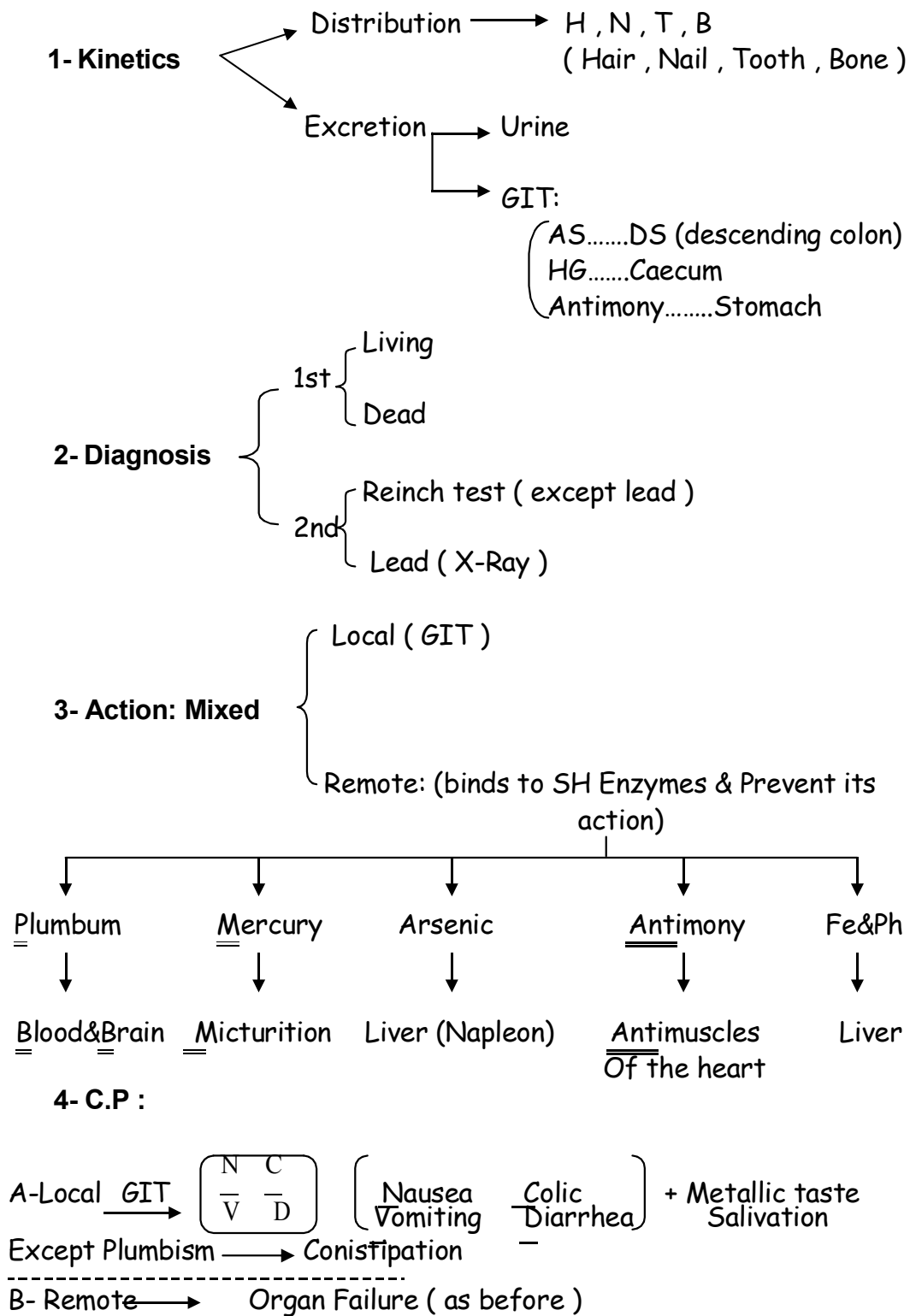
3 - Local antidote

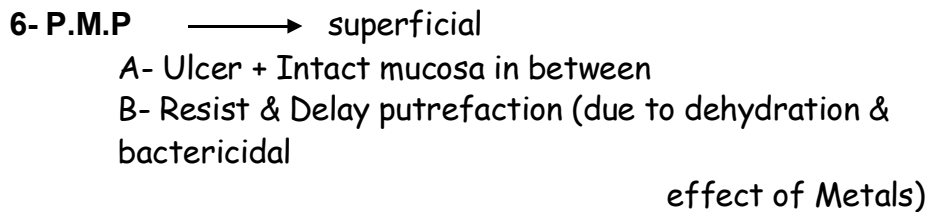
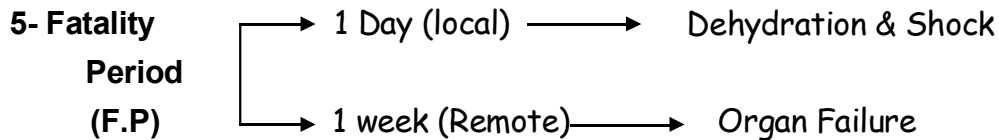
- Charcoal
- H_2O_2 and KMNO_4
- Tannic acid and NaHCO

4 - D.D and hemodialysis : for renal failure

Metallic poisoning

Scheme:-





7- Cause of Death:

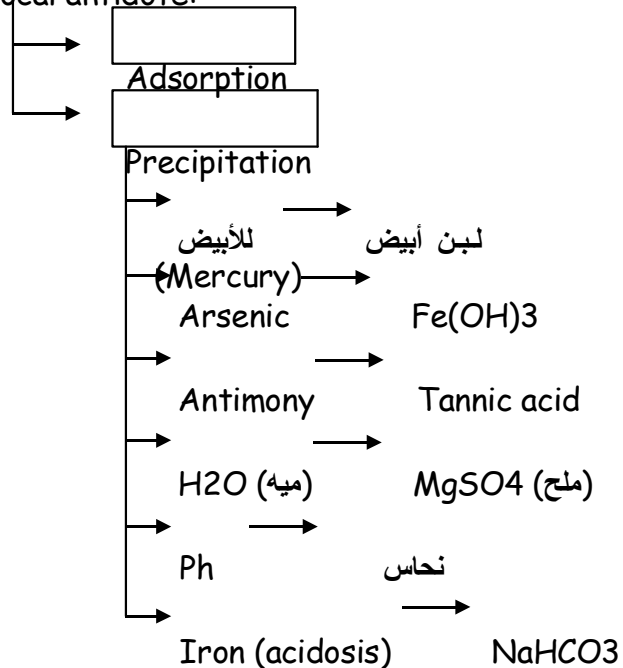
- A- Dehydration & Shock (1 Day)
- B- Organ Failure (1 Week)

8- Treatment:

- A- S&S
- B- ECG
- C- Local Antidote
- D- D&D

- E- physiological antidote → Chelators
- 1- BAL
 - 2- EDTA
 - 3- Penicillamine
 - 4- Desferol

C- Local antidote:



Blood Brain Black offensive stool Micturation Mucus مية

	Plum bum	Mercury
<u>Kinetics:</u>	Distribution: H + N + T + B 	Distribution: H + N + T + B Caecum (excreted)
<u>Diagnosis:</u>	Living X-Ray >0.25 mg/dl in Urine	Living Reinch test >100 mg/dl in Urine
<u>C.of Poisoning:</u>	- Occupational - Household - Environmental Rare by Insecticide	- Ingestion of soluble Salts overdose - Vaginal plugs Rare Ingestion of Corrosives
<u>F.P:</u>	1 Day 1 Week → Brain	1 Day 1 Week → Kidney
<u>Local</u>		
<u>Remote</u>		

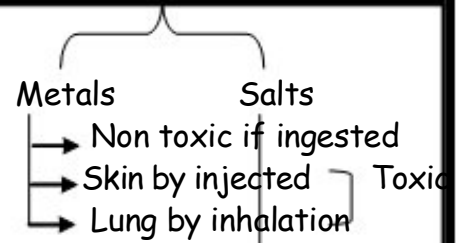
Sources:

1- Environmental:

- Air (exhaust fumes)
- Food (flies)
- H₂O (pipes)

2- Industrial & household:

- Oleate → Ovum
- Arsenic → Ants
- Subacetate → S.C
- Oxides → Haematoma
- Oxides → On iron
- TEL (in petrol) → (to prevent rust) child (immature BBB) Workers

Organic
xxxxDiuretic
xxxx

Inorganic

Mecuric

-Chloride

Cleaning

-Fluminate

Firearm

-Cyanide

Cidal

Macurous

Chloride

Calomel

Colon of children

Pink

Disease



1- Pink extremities

2- Painful

3-

4- ↑ BP

5- Bald (alopecia)

Uses:

- 1- Bullets
- 2- Pencils
- 3- Printers
- 4- Pipes

- 1- Blood Pressure
- 2- Batteries
- 3- Lamps

<u>Action :</u>	Local : → (GIT) Remote : ↳ Brain ↳ Blood → haemolysis	Local: → GIT Remote: → Kidney & brain
<u>C/P:</u> a) Local: b) Remote:	metallic taste ↑ M N V S C D → black & Offensive stool ↓ salivation + Dehydration & Shock 1) Brain ↓ Encephalopathy (all sympt. of mental deterioration) 2) Blood → Haemolysis ↓ R.F (as before)	M N V S C D ↓ mucous + blood (Merconial dysentery) *Kidney Failure

35

<u>TTT:</u> 1) S&S 2) ECG 3) L.A 4) Physiological antidote	1) Care of shock 2) Care of dehydration 3) Care of CNS 4) Care of Kidney ✓ ✓ ✓ 1) Adsorp → Charcoal 2) <u>Precipitation</u> → Salt $MgSO_4$ ✓ ✓ ✓ ✓ All exept dysferral	1) Care of shock 2) Care of Kidney ✓ ✓ ✓ 1-Precipitation: Abbumine Skinned milk ضربلا ضريبلا ضريبلا ضريبلا <u>Not milk</u> → <u>Death</u> 2-Mercuric ↓ Mercurous Na Formaldehyde Sulfoxalate All exept dysferral & edita
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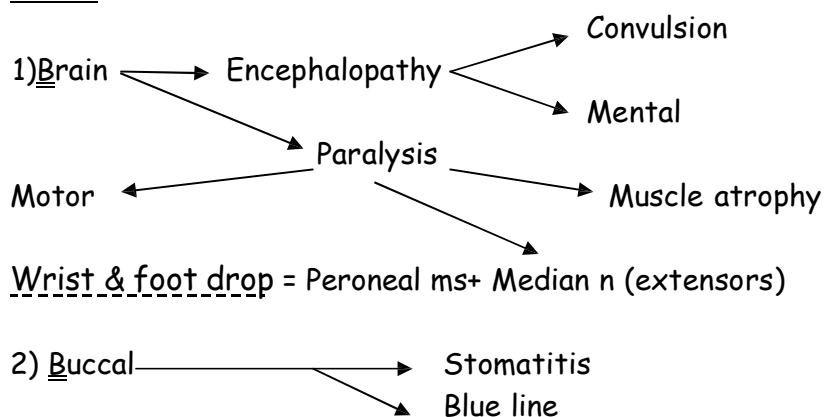
Chronic Lead Poisoning

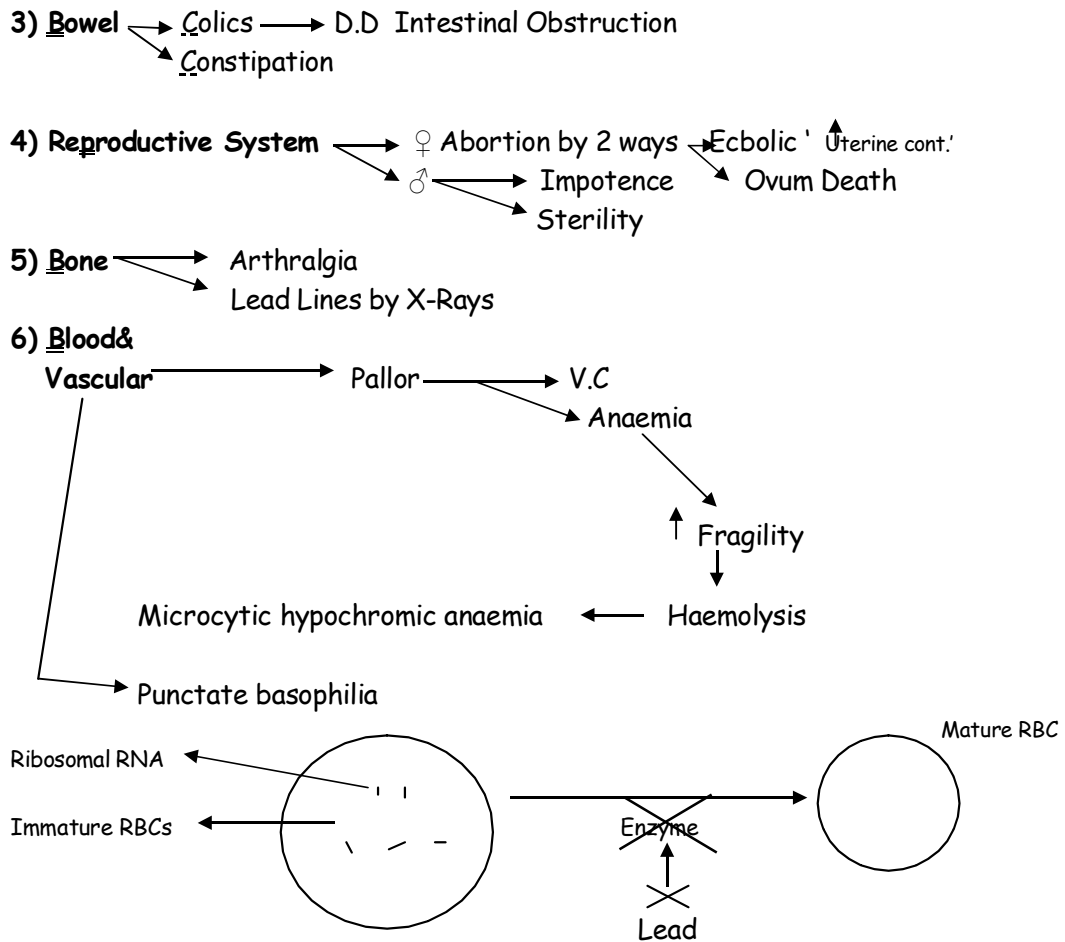
6 Bs Æ Body Organs

Plumbism = Chronic toxicity

- Purely motor neuritis:

C/P :

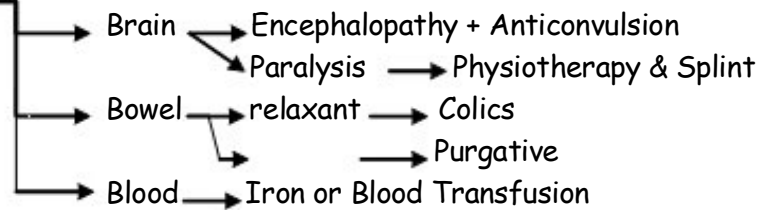




Treatment:

- يدخل Pb جوف العظم بدل الدم +
- 1) Prophylactic → Ca+2
 → Check up
 → Clothes
 → Containers
 - 2) Prevention of further exposure
 - 3) Physiological antidote → Chelators
 Most imp EDTA

4) Symptomatic:



Chronic poisoning (Mercury)

متسول ← MercurialismC/P:

1) Mercurialentis



2) GIT → Mercurial dysentery

↳ Mucous + blood



↳ Vomiting + Diarrhea

3) Renal failure → Olig + ABC : anuria

4) Oral → Salivation

Gingivitis

Grey line (Mercury)

Cancrum Oris ← Gangrenous

5) Skin → weeping dermatitis (oozing dermatitis)

6) Cerebellum → kinetic tremors

7) Psychic → shyness

↳ loss of confidence

↳ erythema

TTT:

0) Prophylactic

→ cloth

→ container

→ check up

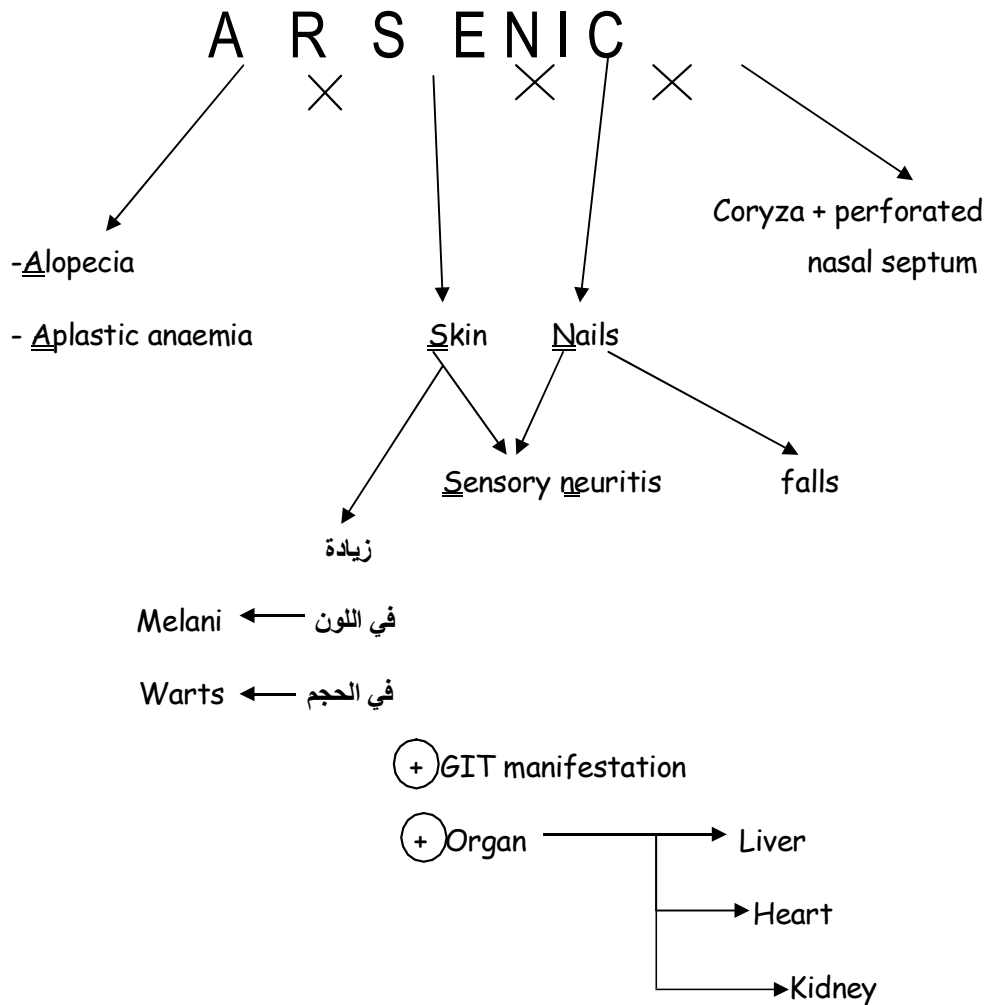
- 1) Prevention
- 2) Physiological antidote
- 3) Symptomatic ttt:-
 - * psychological
 - * Nervous
 - * atropine for salivation
 - * BAL skin ointment
 - * BAL eye drops
 - * mouth hygiene

METALLIC POISON MOUTH HYGIENING

Arsenic (ناپولین پوناپارت + ارز)	
Diagnosis:	REINCH TEST → Geometrical shapes ◇◇ powder
Kinetics:	descending colon
F.D:	100 mg
F.P:	1 day → dehydration & shock 1 week → liver failure
Source:	1- الطيب → As₂ S₃ (yellow) 2- الشيرير → As₂ O₃ (White) 3- Organic → Syphilis 4- Inorganic → salts Insecticide ← { lead arsenate Cu arsenite 5) Arseine gas +++ blood transf. + dialysis { haemolysis ↓ renal failure
C. of Poisoning:	• Accidental → Household → Occupational • Suicidal → Rare • Homicidal → <u>Common</u> Advantages: 1) <u>C</u>olics (gastroenteritis) 2) <u>C</u>olor 3) <u>C</u>an escape (4hrs)

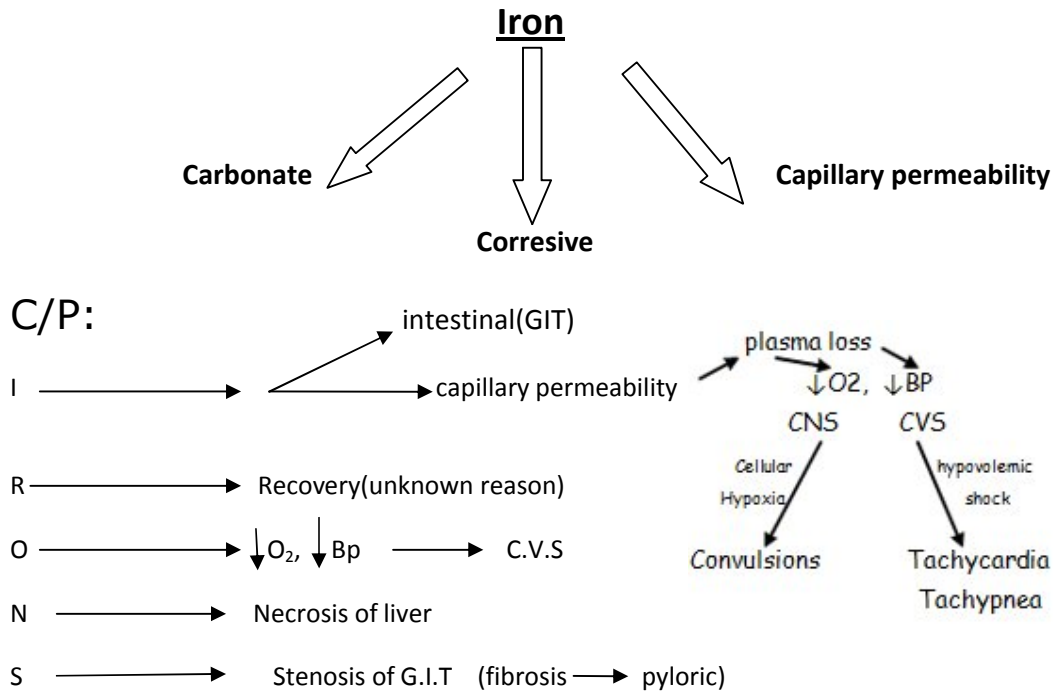
	4) No <u>C</u> haracteristic smell/odour																				
	<u>Disadvantage:</u> Detected after putrefaction In 'B, N, H'																				
<u>Actions:</u>	1)Local: GIT 2)Remote: SH group enz	Liver Heart Kidney																			
<u>C/P:</u>	1)Local: m n V s C D → Rice watery stool D & S due to toxic capillarities stress of intestinal mucousa 2)Remote: → Liver Failure																				
<u>D.D:</u>	<table><tr><td></td><td>Arsenic</td><td>Cholera</td></tr><tr><td>1)Toxic</td><td>√</td><td>X</td></tr><tr><td>2)Bacteria</td><td>X</td><td>√</td></tr><tr><td>3)Colics</td><td>√</td><td>X</td></tr><tr><td>4)Vomiting & Diarrhea</td><td>V.....D</td><td>D.....V</td></tr><tr><td>5)Temp</td><td>↓</td><td>↑</td></tr></table>				Arsenic	Cholera	1)Toxic	√	X	2)Bacteria	X	√	3)Colics	√	X	4)Vomiting & Diarrhea	V.....D	D.....V	5)Temp	↓	↑
	Arsenic	Cholera																			
1)Toxic	√	X																			
2)Bacteria	X	√																			
3)Colics	√	X																			
4)Vomiting & Diarrhea	V.....D	D.....V																			
5)Temp	↓	↑																			
<u>TTT:</u> 1) S & S 2) ECG 3) Local antidote 4) D & D 5) Physiological antidote	- Care of shock - Care of liver √√√ 1)Charcoal (Adsorp) 2)Fe(OH)3 (percipit) √√ BAL DMSA EDTA																				

Chronic Arsenic



TTT:-

- T:-**
- 1) Prophylactic 
 - 2) Prevention
 - 3) Physiological antidote (BAL, etc...)
 - 4) Symptomatic ttt 



Diagnosis: X-ray

F.D: → 200m.g/kg

F.P → 1 day

1 week → Liver failure

Actions:

- 1) local
- 2) Remote
- 3) Capillary permeability

Metabolic acidosis:

- 1) Ferrous → Ferric + H → Acidosis
- 2) Disruption of mitochondrial function

C.of poisoning:-

Acc → Mainly children
→ Therapeutic (predisposed)
Suic → √√
Homicidal → XX

TTT:-

1) S & S → Shock
→ Liver

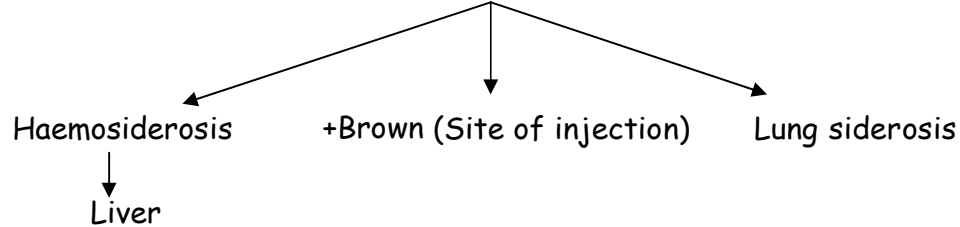
2) ECG

3) LA → NaHCO₃ charcoal

4) D & D √√

5) Physiological Antidote → Desferol
_____ (until wine rose color of urine disappear)

Chronic Iron Toxicity



*causes

- multiple blood transformation
- genetic iron over dose

clinical picture :

- ❖ hepatic
- ❖ heart: cardiomyopathy & arrhythmias
- ❖ endocrine
- ❖ pituitary
- ❖ parathyroid
- ❖ pancreas
- ❖ Skeletomuscular system : Osteoporosis & muscle cramps
- ❖ immune system : Transferring >>>> increase inf
- ❖ skin: Increase melanin production (bronze pigmentation)

Investigation

- ✓ Invasive test: liver & cardia biopsy.
- ✓ lab tests : normal level equal 125 mcg/100 ml.

TTT:-

2) ECG XÆ NEVER as it is A Corrosive -----

3) L.A Demulcent →

4) D & D √√ →

5) Physiological Antidote

Cadmium

	<i>Acute</i>	<i>Chronic</i>
local	<i>GIT :N,V,colic& diarrhia</i>	No GIT BUT Teeth >>> yellowish Bone >>> osteoporosis Or osteomalasia
lung	<i>Flu like symptoms</i>	Emphyseama >>cancer
kidney	<i>Kidney faliure</i>	The same

TTT:-

- Increase Cu & Zn >>> decrease cadmium.
- supportive & symptomatic :
 - _No local antidote
 - _Physiological antidote : calcium disodium edita.

Couse of death:-

- Pulmonary edema.
- Respiratory failure

N.B : in japan "Itai_Itai" syndrome:

- 1-bone fracture
- 2-osteomalsia
- 3-renal failure

Cytochrome oxidase

5Cs Coma

Volatile

- Na-nitro prusside

ttt of HTN

Cyanide (Hydrocyanic acid) (prussic acid)

Source: A) زراعة [Cyanogenic plants
قتل وأكل [Cidal

B) صناعة [Cameras
[Graphic arts
[Metallurgy

Kinetics:

Smell: (bitter almond oil)

D.D:

Red Asphyxia → CN
→ CO
→ Cold

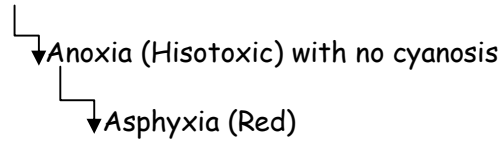
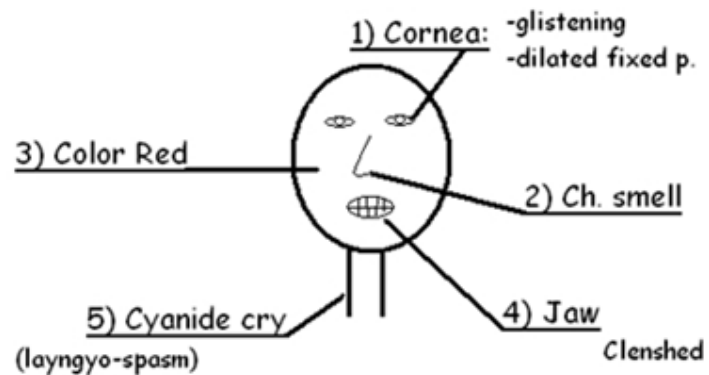
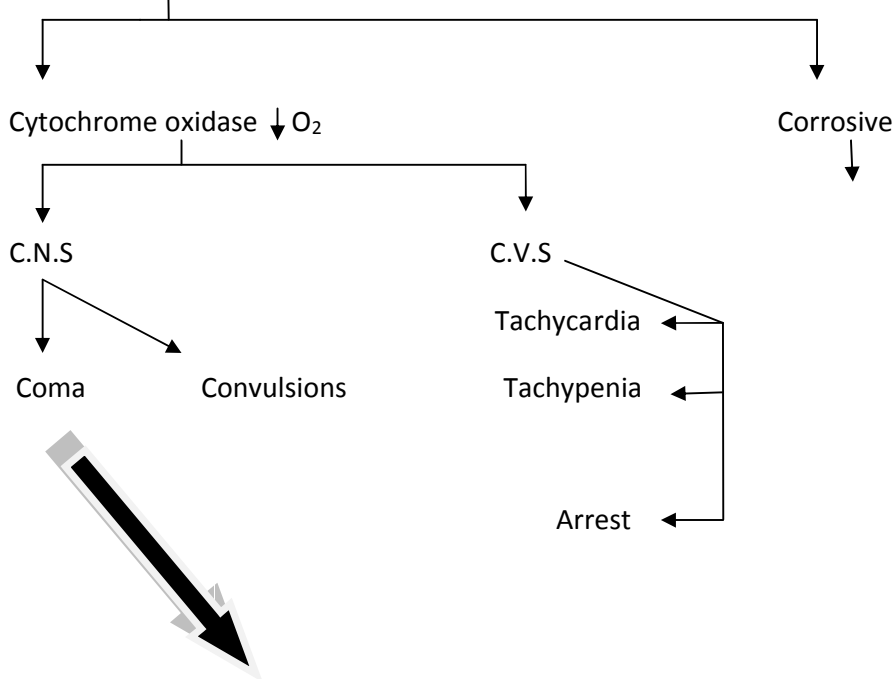
C. of Poisoning:

→ Acc. → child
→ workers
→ Suic. → Spies
→ Lab. workers
→ Homic. → X (smell)
→ Execution → USA

F.D.:

- Acid & drop.
- Salt 300 mg.

F.P.: 1 min

Action:**1) cytochrome oxidase enzyme****2) Corrosive (G.I.T)****C/P:**

P.M.P:

- 1) Smell
- 2) Ulcers
- 3) Brain oedema , congestion
- 4) Int. & Ext. signs of Asphexia (Except blue → Red

TTT: *** 0) physiological antidote

- 1) S & S → Care of resp.
- 2) ECG
- 3) LA → H_2O_2 or $KMNO_4$ (Oxidation) & No thiosulfate.
- 4) D & D & H J
- 5) Phys.A → JJ 1/2 dose

 Physiological Antidote

NT

Kelo

CT

Nitrate thiosulfate

Cyanor

Cobalamine thiosulfate

- 1)  Nitrate thiosulfate
Na Nitrate

a - Oxy Hb → Met Hb
Amyl(inhalation)

b- Met Hb → Cyanomet Hb

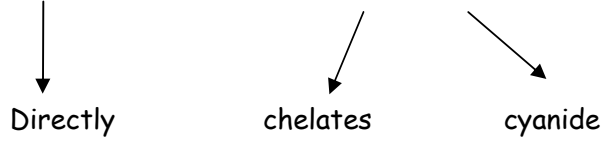
c-Cyanomet Hb+ Na Thiosulfate → Na-thiocyanate (non-toxic) +Met Hb

d-Met Hb +Vit C → Oxy Hb

Side effects:

- ✓ hypotension
- ✓ cyanosis due to Met Hb formation

2) Di cobalt EDTA



Dose: 300 -600 mg I.V

3) C T $\longrightarrow$ Thiosulfate =Hydroxycobalmine =Vit B_{12a}

a- Vit B_{12a} +Cyanide Cytochrome $\longrightarrow$ Vit B_{12a}(cyanocobalmine) + Free Enzyme

4) Dimethyle 1-4 aminophenol "DMAP"

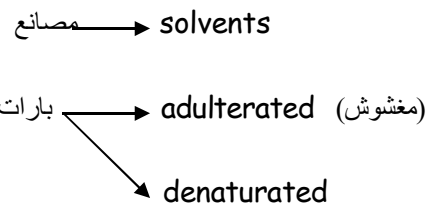
New drug claimed to produce methmyoglobinemia more rapidly

Methanol

MICC

(Wood alcohol)

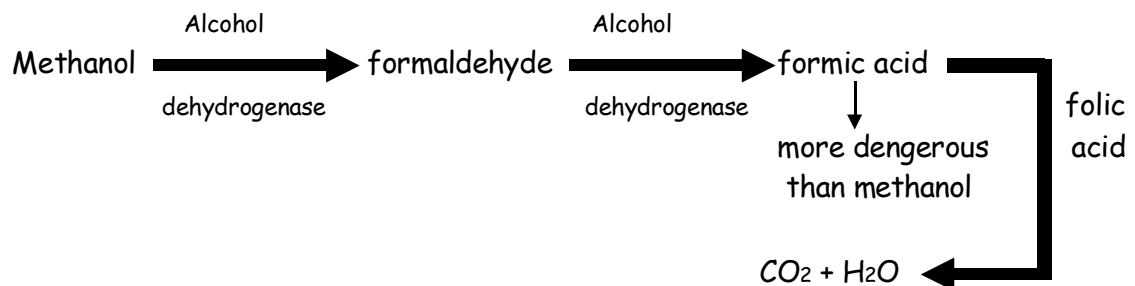
Because it's derived from wood

Source:Uses:

- In factories.
- Unfit for drinking

Kinetics:

- Absorb.
 - GIT 5%
 - Lung 5%
 - Skin
- Distribution: organs with H₂O content + Optic nerve
- Metab. & Excretion 90% liver, slow excretion & accumulation effect



- 10% excretion as it is
 - 5% mouth
 - 5% urine

C. of poisoningAcc.

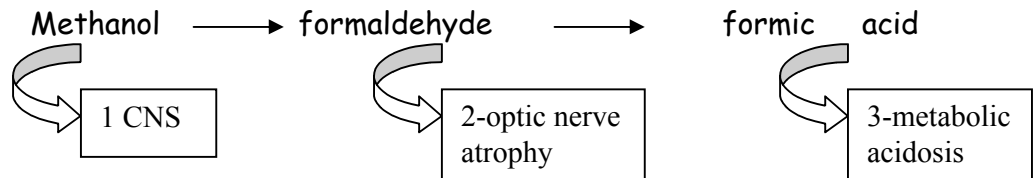
Mainly because its
not fit for drinking

- Child
- workers (fumes)
- Addicts

F.D : 100 ml → death (if pure)
15 ml → blindness

F.P : less than 10 hrs (few hrs)

Action :



C\P :

M → Mydriasis
M → Metabolic acidosis (kausmal respiration) جعانه للهوا

I → intestinal → n c → قدام
 → V d → ورا → Hge Pancreatitis

CNS

C → convulsion, encephalopathy, disorientation, stupor & coma
 due to accumulation of formic acid

C → coma , death & central asphyxia

P.M.P :

1. Smell
 2. Brain
 3. Asphyxia
 4. Optic nerve atrophy
 5. Pancreatitis
- Pipe stem atrophy

Ttt :

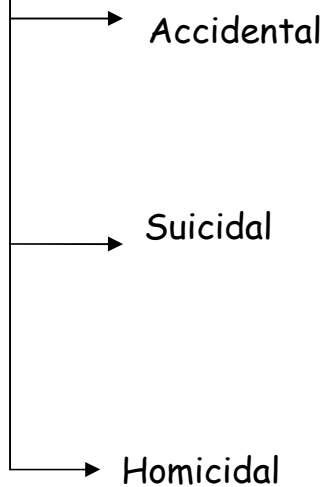
Phys antidote → 1- ethanol → compete with methanol for
 alcohol dehydrogenase
 2- dose: 19 mg\kg\30min for lox solution followed
 by 5 mg\kg\4hrs
 better : folic acid (leucovorin Ca)
 3- methyl pyrazole

Ethanol → EICC

D.D: atropine

Diagnosis: breathe analyzer or drunkometer

C of poisoning:



Sources: produced → by fermentation of sugar by yeast → concentrated by distillations

Uses:

Hospitals & industry → antiseptic

Houses → cologne

Bars → beverage

F.D: 800 ml

F.P: 10 hrs

PMP:

- 1- Smell.
- 2- Stomach congestion & irritation.
- 3- Brain oedema & congestion.
- 4- Int. & ext. signs of asphyxia.
- 5- Hypostasis → blue
Flushed

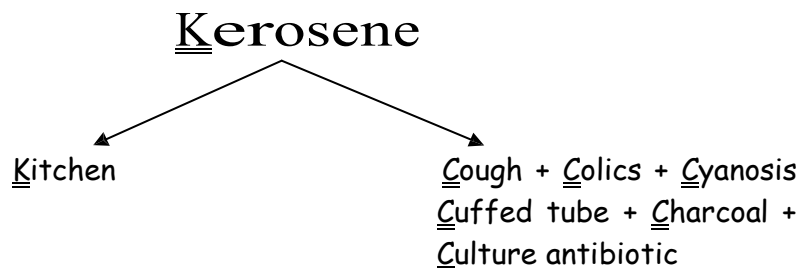
III:

- Care of respiration
- ECG
- NaHCO_3 (acidosis)
- D & D
- Vit. B₆ (pyridoxine)
+ Alcohol metabolism

I.V NaHCO_3 for Acidosis.

*** BICARBONATE**

Brain edema }
↓ Bl. Glucose } Glucose or Mannitol "Osmotic Agent"

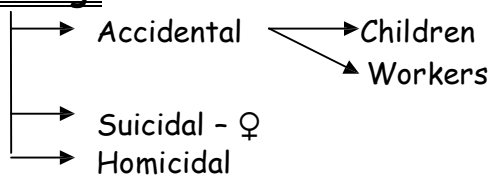


Source: Petrolleum.

Uses: Fuel, solvent (factors).

Diagnosis: X-ray chest.

Condition of poisoning:



Action	Clinical picture
1- Resp. tract chem. Pneumonia(asp) bact. pneumonia	Cough & dyspnea
2- GIT irritation.	Nausea, vomiting, colic & diarrhea.
3- CNS depression	Coma, Cyanosis (CA)

TTT:-

- Care of respiration
- Antibiotic after culture & sensitivity
- No emesis
- Cuffed endotracheal
- Charcoal
- D & D
- No physiological antidote

S&S
ECG
LA
D&D
Phys.Antidote

Toxic gases

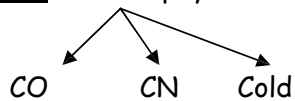
Carbon monoxide

- **Source** : $C + O \rightarrow CO$

- 1)Charcoal
- 2)Car fumes
- 3)Coal mines
- 4)Cigarettes
- 5)Fire

- **Kinetics** : silent killer (odourless / colorless / smokeless)

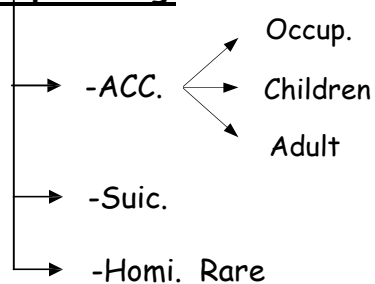
- **D.D** : Red asphyxia



- **Diag.** : Spectroscope + Gas chromatography

- Dilution test
- kunkels test
- Infra red analysis

- **C.of poisoning** :



• **F.D.** : 0.1 % in air → 50 % CoHb

• **F.P.** : 2 hrs.

• **Action** :

1) Co + Hb (300)

2) ⊖ association

⊖ dissociation (shift to the left)

Red
asphyxia

Anaemic
Anoxia

• **C.P.** :

Conc.	Key word	S & S
0-10 %		
20 %	Two systems	• CNS → Headache • CVS → Dyspnea (severe exercise)
30 %	Three systems	• CNS → Throbbing headache • CVS → Dyspnea (more) • Muscle *** Weakness
40 %	Four systems Fail to escape	• CNS → More and more • CVS → Dyspnea • Muscle → Incoordination • GIT → Vomiting
50 %	Flaring of symptoms +	• Shock
60 %	Starting death	• Convulsions/Coma/Cheyne Stokes • Resp.
70 %		Immediate death

• **Complications :**

Brain	}	Affected
Heart		
Kidney		Necrosis
Liver		
Muscles		Degeneration

• **Pm. Pic. :**

- 1) brain oedema & congestion
- 2) int. & ext. signs of asphyxia (blue → red)
- 3) lung , brain & heart complication

• **TTT :** NO SCHEME (GAS)

0) Prophylaxis (ventil.) (M.A.C.) أو عصفير الكناريا

1) Bed rest }
Blanket } ↓ O2 to ms.

2)) Hyper baric O2

- 1-fresh air
- 2-100% O2
- 3- hyperbaric O2

4) BL. Transfusion

5) Mannitol (brain oedema)

6) Helthion

ORAL

Carbon Dioxide.....small dose $\uparrow$ RC

***Cyanosis (CNS ↓↓↓)

Source : factories (soft drinks) & fire

Action : Simple asphyxia

Pyrethrum, pyrethrins, pyrethroids:

- Natural compound from $\longrightarrow$ chrysene the mum flower
- pyrethrum= six active pyrethrins
- pyrethroids $\longrightarrow$ synthetic pyrethrins

❖ **Mechanism of action:**

- in human: cutaneous & international allergic reaction
- in insects : nerve sodium channel current repetitive discharge

❖ clinical picture

- 1 - **Skin**: → erythema & variculation
- ** Most common adverse reaction of pyrethrins exposure
- 2- **Pulmonary** → upper airway irritation: "rhinitis, throat irritation & edema"
→ Lower airway irritation: cough & chest pain
- 3- **GIT**: N, V, C, D with oral or inhalation
- 4- **CNS**: tremors, in coordination & paralysis

- 1 - **Supportive therapy**: based on signs & symptoms
- 2 - **GIT decontamination**:
 - ** Not indicated except 1g/kg
 - ** < 1 g/kg → risk of aspiration of hydrocarbon is more serious than reaction of insecticides
- 3- **Emesis & lavage** with endotracheal tube → preferred method

Chapter 1:

O.P. (Organo-phosphorus)

Insecticide

O.A (Opposite Atropine)

1- Source & uses:

→ Parathion
→ Insecticides

2- Kinetics:

-Parathion Paroxone (Toxic).
-Smell Garlic ريحة الثوم

3- D.D.

→ 3 C
→ Coma Cyanosis Constricted pupil

1. O.P
2. Morphine.
3. Carbolic Acid.
4. Pontine Hge.

4- C. of poisons:

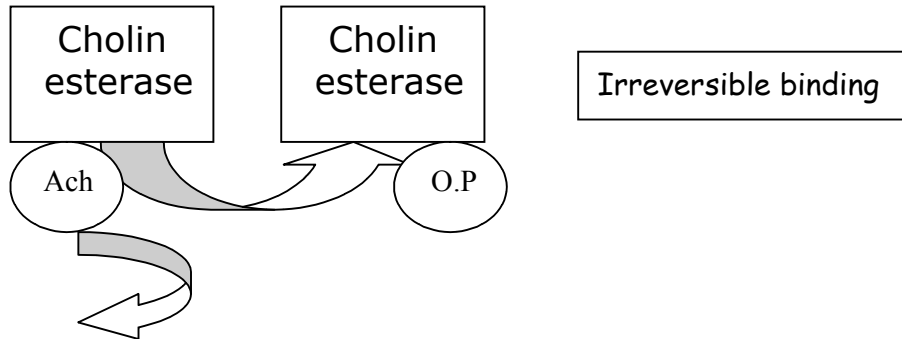
→ Acc → Children
→ Acc → Workers
→ Acc → Feed
→ Suicidal → ✓
→ Homicidal → X (Garlic smell)

7 – Action :

*binds to & phosphorylate cholinesterase enz "anticholine esterase"

** Normally: the enz hydrolyze Ach to terminate its action

** When enz is inhibited the Ach increased & binds to muscarinic & nicotinic R.



circulation

acetylated enz

phosphorylate enz

8-C/P:

1. **Central:** $\longrightarrow \uparrow : \downarrow$

2. **Nicotinic:** $\longrightarrow$ **N-M Junction**

$\downarrow$
 $\uparrow : \downarrow$
=Skeletal ms.

$\uparrow$ **Secretion of bronchi**
 $\uparrow$ **Salivation**
 $\uparrow$ **Sweat**

3. **Muscarinic:**

$\longrightarrow$ **Multiple glands** $\longrightarrow$ **S L U D syndrome** $\longrightarrow$ **Defecation**

$\downarrow$ **Muscles (smooth ms.)**



P.P.P



Broncho spasm



Bowel



Bladder

9- Cause of death:**Asphyxia**

- 1. Central asphyxia.
2. Peripheral asphyxia.
3. Bronchospasm & Secretion of bronchi (Mascarinic).
- 4-paralysis of respiratory muscle

10- Diagnosis:

- 1- from clinical picture
2. blood → Choline esterase < 25%

11- Post-mortem picture:

- | | |
|---|----------------|
| 1. Garlic smell | √S/S |
| | + |
| 2. Brain Edema & congestion | √S/S |
| | + |
| 3. Internal & External | √B |
| Signs of asphyxia | + |
| + | √P |
| Pulmonary | + |
| Edema | √P |
| 4. Resist Putrefaction | + |
| | C/P |
| 5. detection of OP in decompensated bodies. | |

12- complication :

1-intermediate syndrome:

- Will be 24 to 8 hours
- paralysis of proximal limb muscles.

2-neck flexion paralysis.

3-paralysis of resp. muscles
due to:

- Post synaptic
- Neuromuscular dysfunction

2-delayed peripheral neuropathy:

-1-5weeks

-will be:

1-parathesias & pain

2-cramps in calves followed by ataxia & toe drop.

- Disease progress for 2-3 weeks >>>>muscle wasting.
- Due to : distal degeneration of long axons of peripheral n.& spinal cord

Tracts.

- Ttt is difficult & no role of antidote.

12- TTT:

0. Prophylactic
- Clean
 - Clothes
 - Containers
 - Cholinesterase (Period examination of level in blood)

1. Care of respiration ✓

2. ECG ✓✓✓

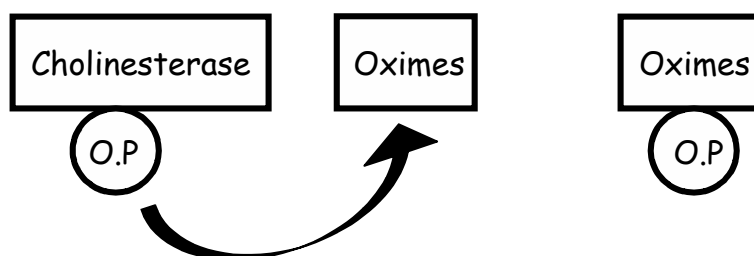
3. L.A. → H₂O₂ / Charcoal
Oxidizing agent

4. D.D ✓✓

5. Physiological Antidote:

- a. Atropine → 1-2mg/15 min
 ↳ Except nicotine
 ↳ Central + Mascarinic action only
- b. Oximes → 1gm /I.V.
 ↳ Action: reactivate the enzyme

Should be taken
Early before ageing
Of enzyme



- Types:**
- PAM → Peripheral & Nicotinic
 - DAM
 - Obidoxime
- } More effective & Better

Carbamates —————> Baygon (typically similar to O.P except)

No oximes
Short duration
Reversal inhibitor

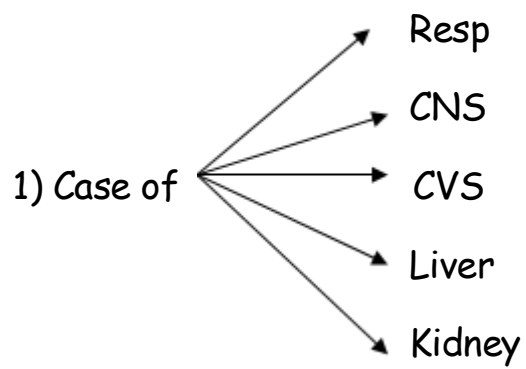
1. Phosphorylation? No
2. Prolonged action? No (Because it's reversible)
3. Potent? No (1) Reversible effect on Enz. Cholinesterase.
2) Oxime & Carbamate forms a bad compound
4. PAM & DAM? No
5. Pass B.B.B ! No !!

N.B oximes are not used due to rapid regeneration of ch. Esterase enzyme.

1. CNS + CVS
 2. Cholemia + Uremia
 3. chronic.
- Chlorinated hydrocarbons

O.C
(organo-choline)

↑ ↓ action	C\P
tthen	√
2. CVS: V.F. (myocardial irritability)	√
3. Cholemia (liver failure)	√
4. Uremia (Renal failure)	N,V,C,D
Haemolysis of RBCs	Cough wheezing

TTT:

2) ECG

3) L.A

4) D & D

5) Physiological antidote **X NO!!**

Synthetic drugs

Aspirin:

-Source : Salycilic acid

-Uses :

- 1) Analgesic
 - 2) Anti-rheumatic
 - 3) Anti-inflammatory
- } ↓ PG
 ↑ Cortisone

-Diagnosis :

1. X-ray (Aspirin cake)
2. Kidney & liver run tests
3. Coagulation profile
4. Blood salicylate level



-F.D. 1 day

-Conditions of Poisoning

Mainly ACC {
 → Child
 → Therapeutic
 → Hypersensitivity

Suicidal → young adolescents but in morbidity > mortality

-Actions & C/P:

Aspirin {
 → Abdominal pain (ulcer)
 → Arterial bleeding
 → Allergy
 → A.T.N (Acute Tubular Necrosis)
 └ (R.F) → cause of death
 → Aural(ear)
 → Acid-base balance
 → Agitations (C.N.S ↑: ↓)
 └ Respiratory failure

Action	C/P
1) GIT 2) (-) Platelet aggregation (-) Prothrombin synthesis 3) Allergy 4) R.F 5) Ear 6) C.N.S ↑ ↓ 7) Acid-base balance	Ulcera → Bleeding → =Haematemesis C D N V -Bleeding -Rash & urticaria & Bronchial asthma -√√ - Tinnitus / vertigo (Salicylism) - √√ 1) Resp. hyperventilation Respiratory alkalosis (central action) 2) pH → Neutral ↘ kidney (Renal Compensation) 3) Metabolic acidosis → Kidney ↑ CO ₂ ↘ Kind of Salicylic acid ↘ Kreb's cycle 4) ↑ a.a 5) Uncoupling of oxidation phosphorylation -Metabolic Disorder → Hypoglycemia -Liver → necrosis -Hyperthermia → Uncoupling ↘ Dehydration

⚠ Fatal dose : 390 mg/kg BW -Tablet=320mg

⚠ Fatal serum level : > 100mg %

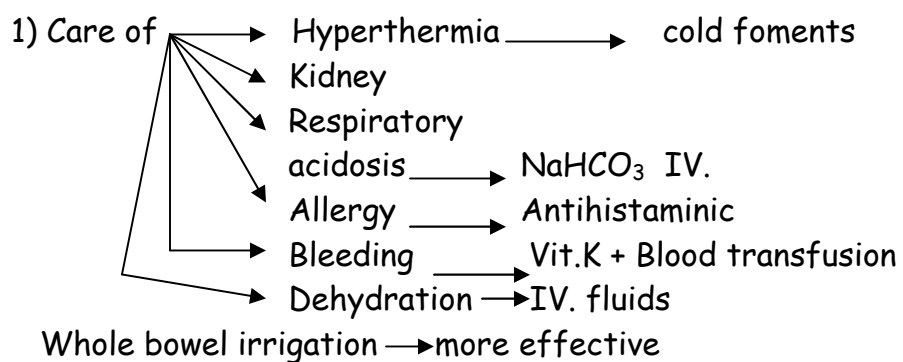
Causes of dehydration :

- Hyperventilation
- Sweating due to fever
- Vomiting

-Causes of death:-

- ❖ Early : -Central asphyxia
 -Cardia arrhythmia
- ❖ Late : -Renal Failure
 -Hge

-+++:



2)ECG

3)L.A → HCO_3 +Charcoal

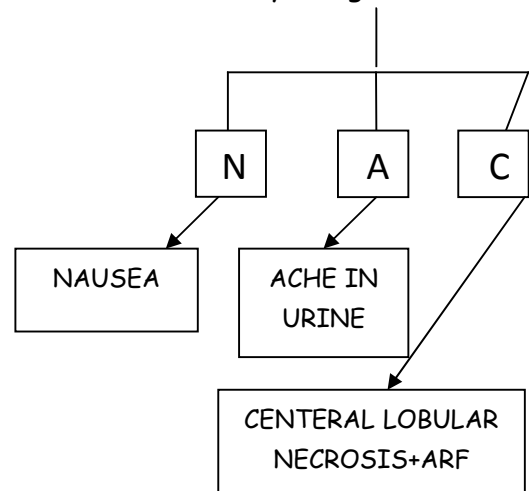
4)D & D forced alkaline diuresis & haemodialysis
(Done to anything that causes acidosis)

5)Physiological antidote → No !!

PARACETAMOL

N-ACETYLCYSTEINE

Physiological antidote



1) Source

synthetic (Aniline)

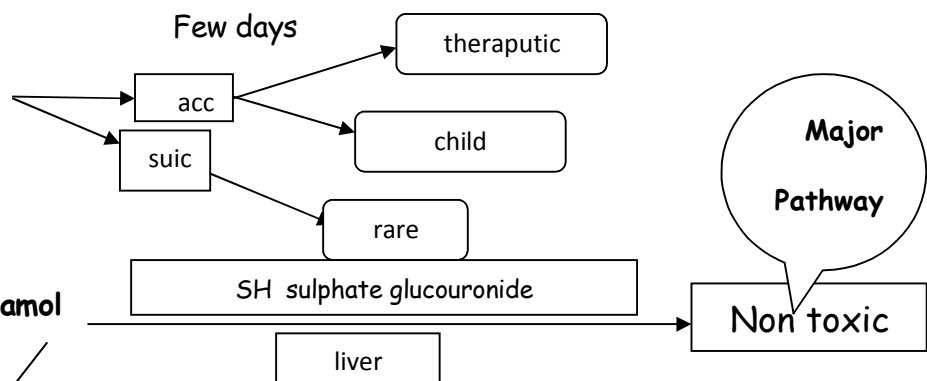
2) F.d

159 total (325 -500 mg)

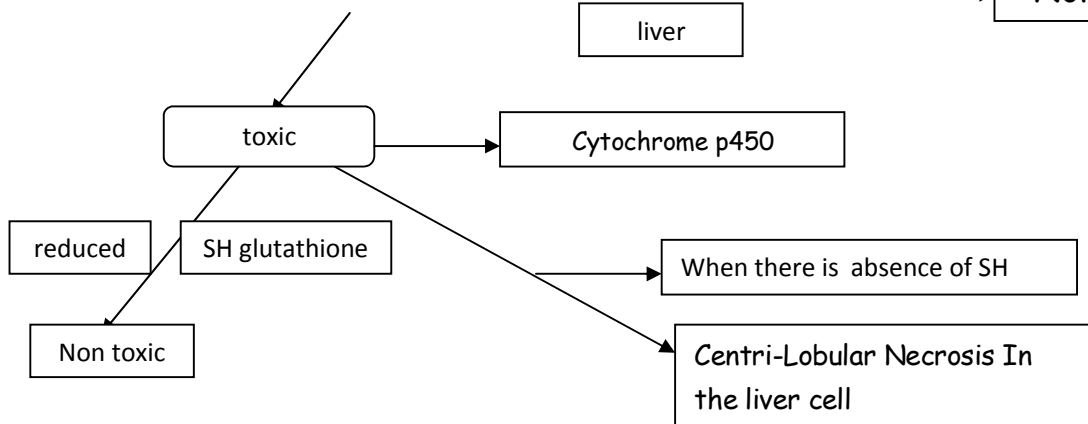
3) F.p

Few days

4) C.of poisoning



5) Kinetic: paracetamol



Action	C/P
IT	I - N a V d
LIVER FAILURE	II - $\longrightarrow$ Pain in Lt.hypochondrium $\searrow$ $\downarrow$ Urine output Liver function test $\longrightarrow$ $\uparrow$ serum enz.
3)FULMINATE LIVER FAILURE	III- $\longrightarrow$ hepatic failure(as before) This condition is reversible
	IV $\longrightarrow$ Prognosis: <u>Recovery:</u> Resolution of hepatic dysfunction and complete hepatic recovery After 3-6 months <u>Death:</u> In severe cases due to multiorgan failure

Treatment:

1)S&S $\longrightarrow$ care for $\begin{cases} \text{liver} \\ \text{Kidney} \\ \text{CNS} \end{cases}$

2) E.C.G $\checkmark\checkmark\checkmark$

3) L.A $\longrightarrow$ Charcoal

4) D & D $\longrightarrow \checkmark$

5) Physiological antidote $\longrightarrow$ N-acetyl cysteine (mucolytic)

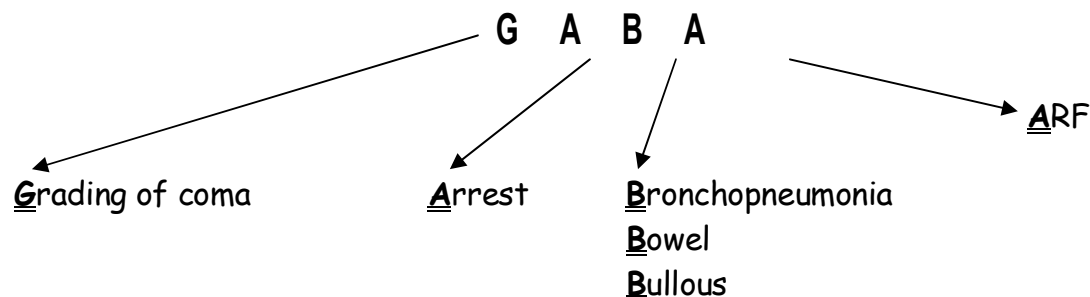
3 letters $\longrightarrow$ 3days

NAC

1) Dose $\longrightarrow$ 140mg/kg $\xrightarrow{\text{loading dose}}$ 7hrs
For 3 days 70mg/kg/4hrs $\longrightarrow$ 14hrs

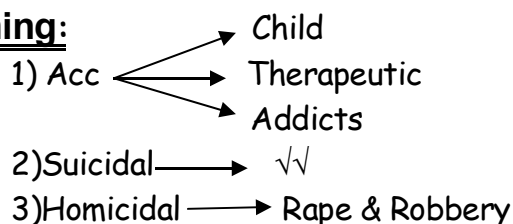
2) Action $\longrightarrow$ $\uparrow$ SH (for sulphate & glutathione)

BARBITURATES

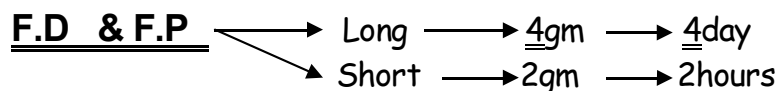
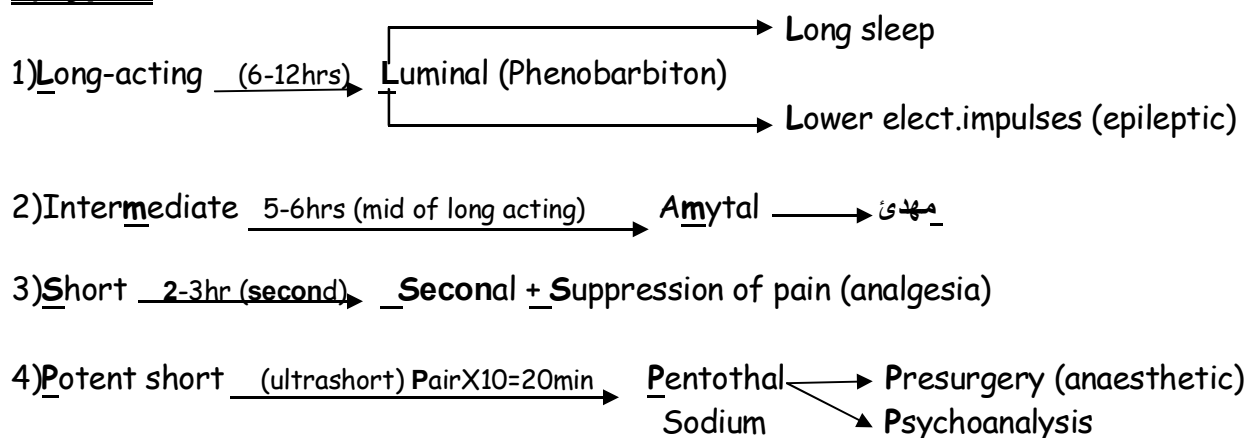


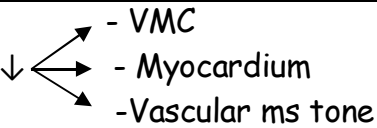
1) Source: → Barbiturates

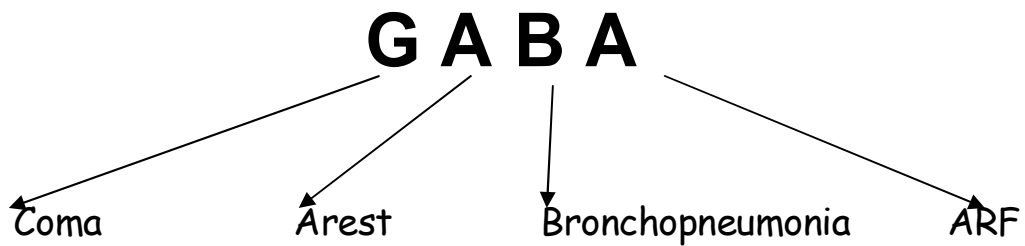
2) C.of poisoning:



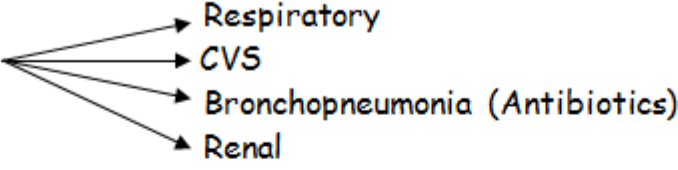
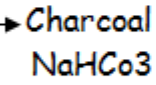
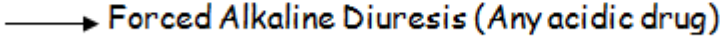
3) Types:



<u>Action</u>	<u>C/P</u>
1)CNS ↓↓	Coma, Cyanosis, Central asphyxia ↓ *Shock *Muscle hypotonia *Dilated reactive pupil
2)CVS → ↓ 	↓BP, ↓Pulse :- Arrest
3)Lung	Hypostatic pneumonia
4)Skin	Bullous
5)Bowel	Constipation & urine retention
6)ARF	√√√

Cause of death:

Treatment:-

- 1) S & S 
- 2) ECG  √√√
- 3) L.A  Charcoal
NaHCO₃
- 4) D & D  Forced Alkaline Diuresis (Any acidic drug)
- 5) Physiological antidote  X

Addiction

Opium

- 1- **Condition of addiction:**
 - Medical
 - Non -Medical
 - Congenital Morphinism
- 2- **Route of Administration:**
 - Morphine → Injection
 - Opium → Ingestion
Smoking + Goza
 - Heroin → Snuff
Inhalation
Injection
- 3- **Diagnosis of Opium Addict:**

Nalorphine → Withdrawal Symptoms (Within 15 min)
- 4- **Mechanism of Action:**
 - Endogenous → Endorphine & Enkephaline
 - Exogenous → Morphine

If No Endogenous nor Exogenous → Withdrawal Symptoms
- 5- **C / P :**

A- Physical	B- Moral (Mental)
• <u>S</u>atiety (Anorexia) • <u>S</u>kin manifestations (Needle Picks abscesses) • <u>S</u>exual (Impotence) • Miosis • Constipation	• Murder • Liar • Dishonest • Indifference • Crimes
} Morphine ONLY	

6- TTT:

- 1) الأهل —→ Admit Addiction + Hospitalization (High secrecy)
- 2) الممرضة —→ Nutrition Drugs
- 3) النفسية —→ Rehabilitation
- 4) السموم —→ Gradual Withdrawal 3 أيام / 4 مرات في اليوم

A-Codiene ↳ SC	B-Methadone ↳ Mouth
M 30 mg ↓ m 10 mg ↓ m + C 10 mg ↓ C 10 mg	1 mg = 2 mg Heroin = 4 mg Morphine Dose : 1/3 : 1/10 : 1/20 Then STOP
Tranquillizer in Case + of Convulsions	

Alcohol

C / P:

1-Physical أصفر + أحمر	2-Mental	3-Withdrawal	4-Nervous (3P)
-Conjunctivitis -Drunken nose -Bronchitis -Gastritis } أحمر -Fatty Liver } أصفر N.B: Feotal Alcohol Syndrome	- <u>D</u> ipsomnia شره كحولي - <u>D</u> ementia عته كحولي مبكر (↓ intellectual of mental power) - <u>D</u> elusions of jealousy (sexual desire + sexual potency) - <u>D</u> elerium tremens هلاوس بصرية (terrifying) Tremors -Auditory hallucinations هلاوس سمعية Korsakoff psychosis المؤلف بياألف حكايات -Wernicks Encephalopathy المهزوز → -Ataxia → -Nystagmus → -Tremors	-Delerium tremens -Tremors -Hallucinations -Convulsions	- <u>P</u> reipheral Neuritis (Mixed lat. More motor) → -tremors → -impotence - <u>P</u> achymeningitis Hagica → Chronic Subdural He - <u>P</u> ain in Muscles → Myopathy

TTT:

- 1- الأهل
- 2- الممرضة
- 3- النفسية

4- السموم

A**+****P****1) Antabuse (Disulfiram)****3) Promazine**

+ Diazepam

(If Convulsions)

2 gm



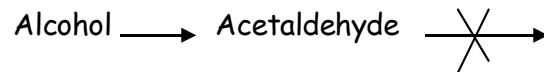
1 ½ gm



1 gm



½ gm ى Year

**Action:** Acetaldehyde Syndrome

(Acetaldehyde + Antabuse)

Vomiting

Flushed
Conj. Red

Palpitation

المشكلة - Rotten Egg odour
- Drowsiness

2) Temposil

Barbiturates

بطئ ومهزوز

1- Condition of addiction: علاج لكل حالات الإدمان

2- C / P:

A-Physical مهزوز	B-Mental (Moral) بطئ	C-Withdrawal
-Ataxia -Tremors -Nystagmus	-Poor thinking بطئ في التفكير -Poor memory -Slurred Speech بطئ في الكلام - <u>Hypersomnia</u> -Drowsiness	-Convulsions √√√√ -CHAIR -Insomnia

3- TTT:

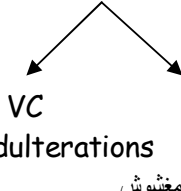
- 1) الأهل
- 2) الممرضة
- 3) النفسية
- 4) (نبدأ بجرعة متعلمش Gradual (Convulsions السوموم

0.5 gm (1 × 2) }
 0.1 gm (1 × 2) } يخلص علاجه
 after 3 weeks

Cocaine

ست وحشة جدا شكلا وخلقا

1- C / P:

A-Physical	B-Mental	C-Withdrawal
-Loss of weight (Cachexia) -perforated nasal septum  VC Adulterations مغشوش -Needle pricks	-Cocaine bugs (Tactile Hallucinations) -Aggressive Mentally -Toxic Psychosis	-Irritable ↓ Secretions

2- TTT:

- 1) الأهل
- 2) الممرضة
- 3) النفسية
- 4) السموم No special TTT
Symptomatic ONLY

Amphetamine

ست بارانويا (Paranoid) عايزة تخس

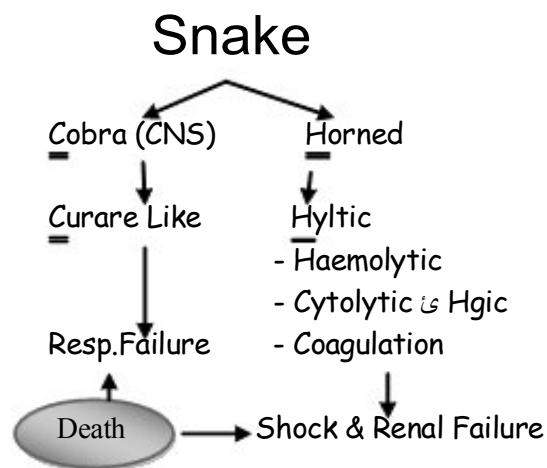
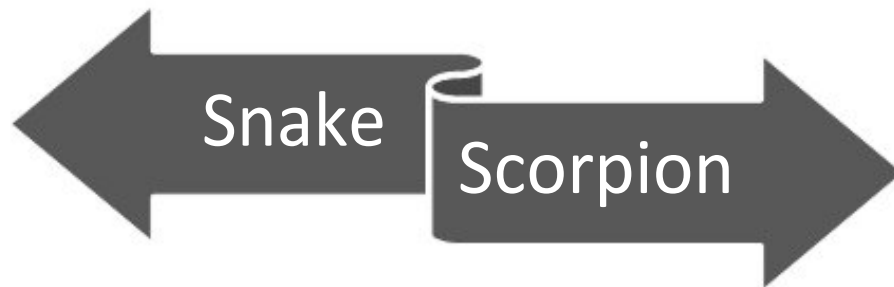
1- C / P:

A-Physical	B-Mental	C-Withdrawal
-Loss of weight -↑Bl.Pr, Palpitations -Erythema	-Insomnia + talkative +Euphoria -Parabnoid Schizophrenia -Persecution اضطهاد Psychosis	-Hyperphagia -Hypersomnia -Depression

2- TTT:

Syptomatic
 (Antipsychotic, Antidepressant ,,,)

Animal Poisoning



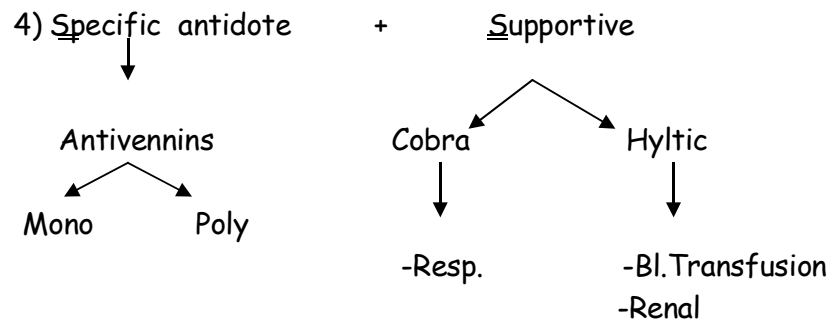
TTT:

1) A + B
Assurance
Anti-tetanus
Antibiotics
Bed rest

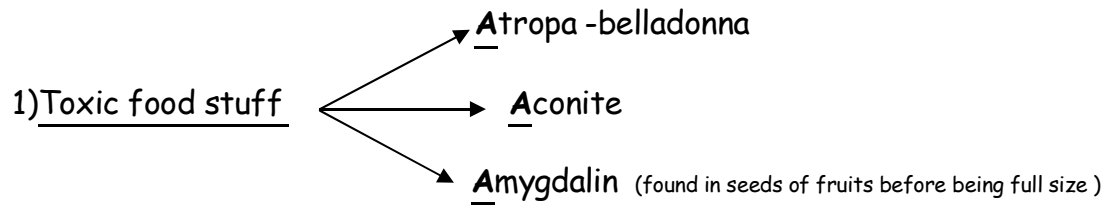
2) S. + S.
Solid ice $\begin{cases} \nearrow \text{VC} \\ \searrow \text{Anaesthesia} \end{cases}$ Suck
ineffective

3) H_2O + KM_2O_4

To detoxify the venom locally



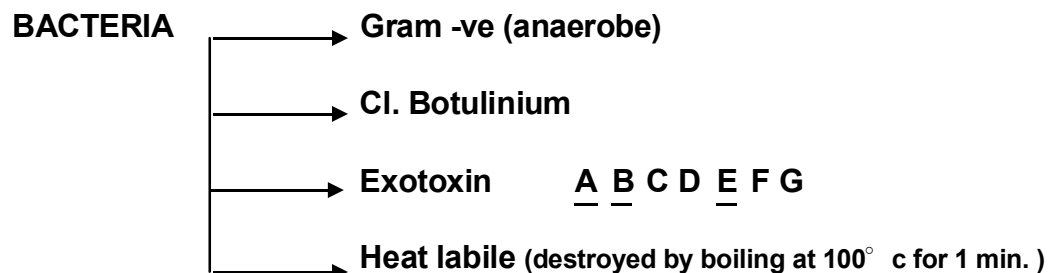
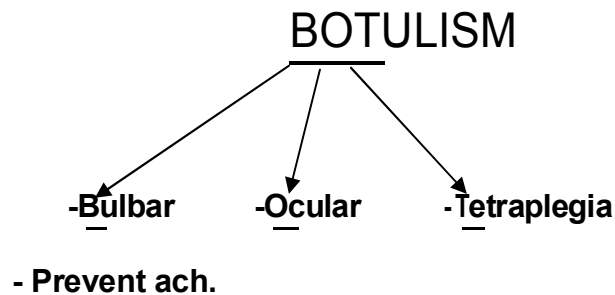
Food poisoning



2) Food Allergy

3) Contaminated Food

Bacteria	Virus	Protozoal	Chemical
Staph.	Rota	Giardia	Metallic
Salmonella		Ent. histolytica	Insecticide Preservatives



Actions:

⊖ Ach.

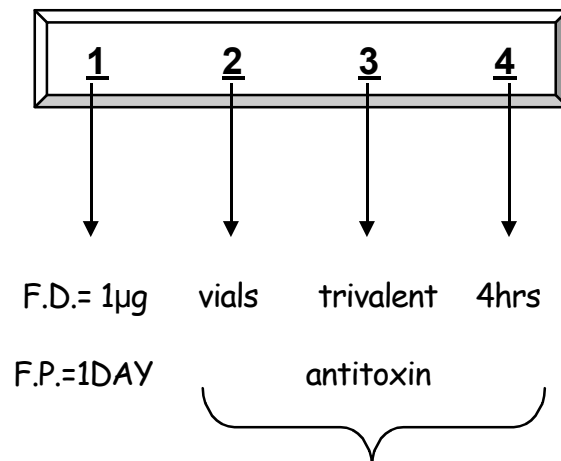
C/P:

- 1) Bulbar
- 9 (glossoph.) → dysphagia
 - 10 (vagus) → dysphonia
 - 11 (access.) → pain in ???
 - 12 (hypogloss.) → dysarthria

- 2) Prevent Ach.
- Constipation + Urine retention, Dry Mouth & Skin
 - Consious till the end
 - Dilated Fixed pupil

- 3) Ocular paralysis → Diplopia

- 4) Tetraplegia → descending & bilateral limbs → resp.ms → asphyxia



2 vials of trivalent antitoxin to be repeated after 4 hrs

TTT.:

1)S&S → Care of Resp.

2)ECG → Cuffed EndoTracheal tube (due to bulbar paralysis)

3)L.A. → Charcoal

4)D & D ✓✓✓

5)Physiological antidote (2vials of trivalent antitoxin to be repeated after 4hrs.) .